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Attitudes Towards Body Organ Transplantation

ABSTRACT

The authors present the outcomes of a study on attitudes towards donation of one's own body organs to others in case of potential donor's clinical death after an accident. The results showed that life organs (e.g. lungs, liver) are more willingly donated than peripheral ones (e.g. fingers, eyes). Some personal values are positively related to this readiness, whereas religiosity negatively. Further research ideas are proposed.

KEYWORDS: transplantation; body part; organ donation; values; social perception.

INTRODUCTION

The motivation to live, with the exception of suicides, is one of the fundamental determinants of human existence. The pharaohs of Ancient Egypt exemplify our stance. What they and their subjects wanted was eternal life for their bodies. Today, people are will-

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ing to sacrifice many of their resources to live longer and more happily. We spend fortunes on medical pills and medical care, and nutrition advisors are held in high esteem for such promises of longevity.

And yet our lifestyles often lead to injuries, dysfunctions and illnesses that require special interventions. Surgeries show that a relatively minor intervention may change someone's life for the better, turning the disabled into relatively fully functioning people. This means removing a dysfunctional body organ/part and replacing it with a healthy one. A similar solution is considered when a particular body part is damaged or amputated, e.g. during an accident. According to 2017 police reports, road accidents in Poland (mainly involving car crashes) took 2,831 lives (according to police statistics). This number seems to increase every year, resulting in an even greater demand for body parts. Thus, we are dealing with a phenomenon that becomes an everyday issue: organ transplantation, or transferring a part from one body (donor) to another (beneficiary/recipient). Laws in some countries regulate the procedure, stating that one must express their will and agreement to become a donor (USA, UK), but in some countries (Spain, France, Poland, for example) it is assumed that unless a specific person explicitly states that they are against donating their organs to someone else, they are potential donors after their death (Zalewski, 2010). There are voluntary donors aside from accident-related cases, too, e.g. a family member offers an organ to a child or a relative.

Needless to say, there are far more people who await new organs, especially hearts, kidneys or livers, than there are organs at surgeons' disposal. The awareness of the fact that such a donation can save someone's life or change it from "hell" to a normal one is growing enormously, and new institutions have been established to serve such purposes. Simply put, a person aware of organ transplantation can make a written declaration of the will, the so-called register, that in case of their sudden death

the intact organs can be donated to someone in need (Article 60 of the Polish Civil Code).

Let us suppose, though, that a person is ready for a potential transplantation of their organs. The question arises: How strong is their readiness? Is there none at all or is this person entirely convinced that they want to become donors? As a Dutch study showed, the main motivation behind body part donation for medical research and training was a desire to be useful after death (Bolt et al., 2010). As in many other reports, during our investigation we asked about organ donations to help others live, which is partially congruent with the sense of being useful after one's death, too. If willingness varies from one donor to another, what are the grounds for such variations? In other words, which psychological factors are behind individual differences in such attitudes? In addition to the already existing reports, the questions above became our guidelines in the presented research.

It is reasonable to assume that the decision behind the donation is based on multiple factors. Some of the available data indicates that personality traits of the Big Five model, e.g. agreeableness via an indirect effect of altruism (Hill, 2016), consciousness (Bolt et al., 2011), openness to experience and, to a certain degree, introversion and neuroticism (Demir & Kumkale, 2013), correlate with such readiness. As for the intention to register as a donor, personality factors, as well as empathy, trust, and time orientation were not significantly meaningful in the elegant statistical model presented by the Turkish researchers. In their sophisticated analyses, Bolt et al. (2011) showed that the Big Five personality factors explain the 5–15% variance in motivation to donate body parts for scientific purposes. Also in Gibek et al.'s (2017) results, the readiness for donation was related to extraversion ($r[102] = .21$), openness to experiences ($r = -.28$), and also to age ($r = .28$), but not religious attitudes (centrality). While not conclusive, the results concerning the role of the Big Five personality factors are significant. Therefore, some personality-related factors may affect

the consent to organ donation. What are they, beside the Big Five dimensions?

Not very clear and even contrary to the theoretical expectation is the negative relation of the religiosity factor to RBPB in the Turkish sample, but also partly in Poland (Gibek et al., 2017). One would assume that Christian faith, based on Christ's sacrifice for mankind, should predispose the faithful to organ donation as an act of love, mercy, and religious obligation. Such an assumption towards the Muslim religion was not confirmed in the Turkish investigation by Demir and Kumkale (2013). Yet, we wanted to review the Polish (Christian) sample once more in order to determine if there is a more general culture/faith-related pattern. The Catholic Church generally prohibits transplantation of organs treated as a base for individuality and exceptionality of a person: brain and reproductive organs (Morciniec, 2009). But there are other organs of paramount importance whose donation the Church does not object to.

As the body of literature on this topic is constantly expanding, one mainly comes across medical texts. These are concerned with successful/unsuccessful transplants and saving someone's life, as well as the risk of recipient's organism refusing new organs, unpredictable aftermaths, post-transplant health issues, and – very rarely – the well-being of the recipients. Psychological analyses tend to concentrate on the quality of mental life after transplantation and general attitudes towards donation, not indicating any particular organs, which may be crucial here. Some organs are given away more readily than others. Another question arises, do organs constitute certain groups or clusters in the cognitive and emotional systems and are they treated alike? Such a common-sense approach based on intuitions, as well as more sophisticated theory, led to the study on the attitudes that people have towards transplantation, and to what extent their strength and direction (pro or contra) can be explained by other psychological factors.

Medical advancement in implanting missing organs, determining clinical death of brain, advanced surgical technology, and the rise of awareness of potential utility of an organ for others all increase transplants' effectiveness and the number of such surgeries. Crucial is not the recipient's need or want of an organ, but the decision of a potential donor. To donate or not to donate – that is the dilemma. Who, under which conditions, when and for whom – these factors are crucial from a psychological perspective. In other words: what are the psychological determinants or facilitators in donors that make them “share” their organs? A scrutiny of available reports and interviews with potential donors led us to the assumptions that follow. Discussing this pro-social decision, we speculated what potential determinants may be and assumed that the readiness to give away one's own body organs may be dependent on such psychological factors as personal value systems, social desirability, altruism, as well as the individualism–collectivism spectrum. Also, the puzzling results of the study on the role of religious beliefs was to be tested once more. Thus, in line with many authors we explore the individual determinants or motives for body donation. It is worth adding that in contrast with many other investigations, this one is original in the sense that we ask about donating specific organs, not making the subjects ponder their general attitude towards body organ donation. One organ may not have the same significance as another for both parties in the transplantation process. The follow-up study will also focus on the “whom to donate to” aspect.

Last but not least is the gender factor. Keeping in mind the classic comparison of men and women, based on extensive research reports by Maccoby and Jacklin (1974) which led to a conclusion that there are no substantial gender differences in psychological terms, we wanted to study this in the context of attitudes towards transplants to see if they are different or similar. There was no data regarding such attitudes available before that publication and when it comes to actual body organ donation, some discrepancies

can be expected. Masculine anatomy is partially different from feminine, and attitudes towards one's own body need not be the same. Therefore, there is a substantial rationale behind investigating the similarities and differences between male and female subjects' approach towards their own bodies.

THE EMPIRICAL STUDY

Sample and methods

222 subjects (96 male and 118 female, 8 did not indicate their gender), aged 16–70 ($M=28.38$, $SD=10.60$) and representing various professions, such as IT specialists, economists, electricians, teachers, clerks, and salesmen, took part in the survey. Some of the respondents ($N=35$, 16 male and 18 female, 1 subject did not indicate their gender) were taking part in pilot studies, so they did not do the Religious Centrality Scale.

A set of the following questionnaires and scales was used:

- **Transplantation Scale.** It measures readiness for body organ donation (RBPD). A list of 22 body parts was compiled, and subjects responded using a 5-point scale: 1 = *would definitely not donate*, 2 = *would rather not donate*, 3 = *unsure*, 4 = *would rather donate*, 5 = *very willing to donate*. The body parts listed (22 in total) were as follows: heart, brain tissue, kidney, liver, arm, leg, pancreas, fingers, reproductive organs, breasts, face, stomach, lungs, intestines, piece of skin, veins, bladder, femur, bone marrow, eye, palm and foot.
- **Value Scale** by Zaleski (1979). It consists of 13 value groups: economic, prestige, artistic, political, health, education, entertainment and risk, moral, hedonistic, social, religious, autonomy, and family. Each group contained 7 to 11 examples representing the value and Ss indicated on a 100-point scale with 20 intervals their attitudes towards each value group.

- ***Individualism-Collectivism Scale*** by Harry Triandis et al. (1986), in an adapted form by Zaleski and Triandis (1988). It is designed to measure a person's self-localization on the bipolar dimension of individualism–collectivism.
- ***Religious Centrality Scale*** by S. Huber (2003), adapted by Zarzycka (2007, 2011). The author maintains that the value and frequency of practicing religion makes it more autonomic, and places religiosity on a higher level of personal constructs. The Religious Centrality Scale consists of 6 subscales: interest in religious problems, religious convictions, prayer, religious experience, cult and religious centrality.
- ***Social Desirability Scale*** (Delta Scale) by Drwal and Wilczyńska (1995). The Polish version (KAS) is broadly used in the investigation.
- ***Self-Esteem Scale*** (SES) by Rosenberg (1965), adapted for Polish by Łaguna et. al. (2007). It has become one of the most exploited variables in this investigation.

One new item with a 5-point answer scale was added to the self-attractiveness questionnaire.

All the tools but the first one and the self-attractiveness questionnaire were standardized for the Polish population, so that they were easy to use and fill in. The principal author collected the data individually.

RESULTS

In the analyses we considered such antecedents as value systems, religiosity, individualism–collectivism, self-esteem, one's own sense of attractiveness and social desirability. Table 1 shows the average RBPB results for each of the organs, for the organ clusters (i.e. life and peripheral organs) created after factor analysis, and for the male and female subgroups.

Table 1. Readiness to give body parts in women and men.

Organs	Total (<i>N</i> = 222) <i>M</i> (<i>SD</i>)	Women (<i>N</i> = 118) <i>M</i> (<i>SD</i>)	Men (<i>N</i> = 96) <i>M</i> (<i>SD</i>)	<i>t</i> -test
Heart	4.36 (0.98)	4.41 (0.88)	4.35 (1.07)	0.40
Brain tissue	3.71 (1.43)	3.77 (1.42)	3.73 (1.40)	0.22
Kidney	4.47 (0.84)	4.53 (0.78)	4.44 (0.86)	0.86
Liver	4.40 (0.89)	4.44 (0.88)	4.38 (0.88)	0.51
Arm	3.62 (1.42)	3.64 (1.42)	3.69 (1.38)	-0.26
Leg	3.62 (1.2)	3.58 (1.45)	3.75 (1.35)	-0.86
Pancreas	4.2 (1.22)	4.21 (1.16)	4.20 (1.09)	0.04
Fingers	3.59 (1.47)	3.56 (1.47)	3.71 (1.44)	-0.75
Reproductive	3.36 (1.55)	3.42 (1.53)	3.30 (1.60)	0.57
Breasts	3.41 (1.53)	3.45 (1.54)	3.43 (1.51)	0.11
Face	3.17 (1.62)	3.17 (1.61)	3.25 (1.64)	-0.35
Stomach	4.17 (1.33)	4.18 (1.14)	4.17 (1.12)	0.07
Lungs	4.17 (1.13)	4.26 (1.07)	4.09 (1.17)	1.11
Intestines	4.07 (1.23)	4.10 (1.24)	4.10 (1.19)	-0.01
Skin	4.10 (1.19)	4.10 (1.24)	4.21 (1.04)	-0.68
Veins	3.90 (1.33)	3.9 (1.32)	3.98 (1.31)	-0.45
Bladder	3.85 (1.39)	3.87 (1.38)	3.91 (1.35)	-0.18
Femur	3.92 (1.35)	3.85 (1.42)	4.03 (1.23)	-0.10
Bone marrow	4.43 (1.02)	4.47 (1.00)	4.39 (1.04)	0.58
Eyes	3.57 (1.50)	3.59 (1.49)	3.60 (1.48)	-0.05
Palm	3.43 (1.52)	3.42 (1.54)	3.48 (1.49)	-0.27
Foot	3.43 (1.53)	3.42 (1.58)	3.50 (1.44)	-0.37
Life	4.31 (0.85)	4.35 (0.81)	4.29 (0.88)	0.58
Peripheral	3.46 (1.35)	3.47 (1.36)	3.52 (1.32)	-0.25

Donation readiness varied between each of the 22 body parts listed. The parts that people would be most willing to donate were kidney, bone marrow and liver, while the ones they would

be least willing to donate were face, reproductive organs, foot, palm, eye and fingers. There were hardly any variations between men and women; kidney is on the first place of readiness for both men and women, followed by liver and heart. Such order indicates that people are ready to donate vital organs that enable life *par excellence*; thus, not the ones that are less necessary or even "trivial", but those crucial for saving someone's life, as well as life sustenance. In medical standards some organs are more important than others. With this assumption in mind, we aimed at a certain systematization of this detailed list of organs, rather too long for a one-by-one analysis. Therefore, we conceived a solution that involves grouping organs based on certain internal factors. Thus, oblique factor analysis (OFA) was applied, and the results are presented in Table 2.

Table 2. Factor analysis.

	Life	Peripheral
Kidney	0.929	-0.120
Liver	0.901	-0.017
Bone marrow	0.818	-0.110
Pancreas	0.767	0.075
Lungs	0.763	0.198
Stomach	0.761	0.162
Heart	0.752	0.083
Intestines	0.528	0.445
Leg	-0.032	0.959
Fingers	-0.085	0.954
Face	-0.165	0.946
Palm	-0.043	0.944
Foot	-0.023	0.933
Arm	-0.029	0.929
Breasts	-0.033	0.898

Eyes	0.073	0.839
Reproductive	-0.002	0.825
Veins	0.267	0.697
Brain	0.142	0.657
Femur	0.290	0.620
Bladder	0.403	0.600
Skin	0.291	0.516

While we tried the three- and two-factor solutions, both arbitrary, we chose the latter as the most suitable one. The OFA yielded two readable factors: life (internal organs and those required for survival) and peripheral (and more external) organs. The former comprised kidney, liver, bone marrow, pancreas, heart, stomach, and lung. The latter comprised leg, face, fingers, palm, foot, arm, breast, eye, and reproductive organs. Surprisingly, brain was marked by the peripheral factor, and only slightly by the life factor. This issue may be specific to the Polish Catholic population, which we mention in the discussion section. As this outcome was not very clear, we decided to treat it separately in the analysis or create a mixed factor, as the other parts such as intestines, veins, femur, bladder or skin have been similarly marked by both factors, therefore they were not included in the principal grouping. The correlation between donating life and peripheral organs was $r = .62$, thus 36% of a common variance for the whole group. This may suggest that a more general readiness to donate organs is observable. When one is prone to donating organs from the first group, such a donor can then consider other body parts for donation as well, although less willingly or with higher restraint.

Let us look at some descriptive indices of RBPD. The results in Table 1 show that the RBPD means are significantly higher for life ($M = 4.27$, $SD = .91$, on a 5-point scale) than peripheral organs ($M = 3.43$, $SD = 1.36$, $t[225] = 11.319$, $p < .001$), with only slight, if any, differences between genders. Standard deviations for both

body part groups are worth pointing out. Aside from statistical limitations, they may suggest that respondents are more univocal when it comes to decisions regarding life organs, whereas those regarding peripheral organs are more varied or spread from the mean on the evaluation scale. Having these groups, as well as specific body parts, we ran further analyses, correlating them with psychological variables in question. The order was as follows: religion, chosen variables and values.

Table 3. Correlation centrality of religiosity scale.

	Bone marrow	Brain
Interest in religious problems	-0.23*	-0.03
Religious conviction	-0.22*	-0.11
Prayer	-0.25*	-0.19
Religious experience	-0.12	-0.11
Cult	-0.14	-0.13
Religious centrality	-0.21	-0.13

* $p < 0.05$.

The next step involved the role of religiosity in RBP. With traditional Polish religiosity in mind, we assumed this factor to be pertinent to it. The analyses of the data yielded some results that were rather contrary to our assumptions. It appeared (see Table 3) that in the male group bone marrow donation correlated with interest in religious problems ($r = -.23^*$), prayer ($-.25^*$), religious conviction ($-.22^*$) and religious centrality ($-.21$, $p = 0.056$), while in one case brain donation had a negative tendency for correlation with prayer ($-.19$, $p = 0.087$). Contrary to the above, there were no significant correlations in the female group. In general, religiosity containing its specific narrative of “giving yourself to others, as Jesus did,” seems to play an opposite role in the altruistic act of sharing one’s body parts in order to save someone else’s life. It is

not easy to explain such a phenomenon, considered positive and rather obvious, but the “harsh reality” is different.

Table 4. Correlation with attractiveness, self-esteem, social desirability, individualism–collectivism.

	Total (N=222)		Women (N=118)		Men (N=96)	
	Life	Peri- pheral	Life	Peri- pheral	Life	Peri- pheral
Attractiveness	-0.04	-0.05	-0.01	0.00	-0.03	-0.08
Self-esteem	-0.01	0.09	0.06	0.25**	-0.10	-0.15
Social desirability	-0.12	-0.06	-0.19*	-0.20*	-0.10	0.08
Individualism– collectivism	-0.11	-0.09	-0.12	0.01	-0.08	-0.15

* $p < 0.05$, ** $p < 0.01$.

The other variables included in the research appeared as shown in Table 4. To begin, let us ask the following question: will more attractive people be more restrained when it comes to donating their “lovely body parts” to others? This is not the case. The attractiveness of one’s own body did not show any link with either RBP group. Next, self-esteem was analyzed, and for the whole group there was no relationship at all, but this lack of any link is due to gender differences. As it can be seen, in women higher self-esteem is related to stronger willingness to donate peripheral parts ($r = .25^{**}$), whereas in men the link is practically non-existent ($r = -.15$, $p > 0.05$). The correlating pattern of opposite links appears also in the case of life organs, but it is short of any significance. This is due to the fact that the results in both gender groups are counterbalance each other.

Regarding social desirability, a weak negative tendency for correlations is observed in the case of life organs in the whole group ($r = -.12$, $p = 0.074$), and for negative correlation in the female

group. Additionally, the coefficient index in this group has the same direction for peripheral organs. Women showed a negative link to donating peripheral organs ($r = -.20^*$), as well as life organs ($r = -.19^*$), whereas nothing was found in the male group.

As far as individualism-collectivism is concerned, we expected that with higher collectivism there would be an increase in donation willingness. Unfortunately, our assumptions have not been confirmed and there is no connection between collectivism and the RBP scale.

The last to analyze was the question of personal values, and correlating results are listed in Table 5.

Table 5. Correlation with values.

	Total (N = 222)		Women (N = 118)		Men (N = 96)	
	Life	Peri- pheral	Life	Peri- pheral	Life	Peri- pheral
Economic	0.10	-0.01	0.17	-0.02	0.07	0.02
Prestige	0.10	0.00	0.04	-0.04	0.14	-0.01
Artistic	0.03	-0.02	-0.06	-0.03	0.17	-0.03
Political	-0.15*	-0.01	-0.18*	-0.02	-0.03	-0.03
Health	0.07	-0.05	0.20*	0.03	-0.10	-0.12
Scientific	0.12	0.01	0.07	0.04	0.21*	0.03
Risks	-0.04	-0.05	-0.08	-0.08	0.02	-0.02
Moral	0.19**	-0.02	0.24**	0.07	0.12	-0.11
Hedonistic	0.19**	0.05	0.10	-0.03	0.26*	0.13
Social	0.06	-0.02	0.03	-0.07	0.09	-0.02
Religious	-0.09	-0.17*	-0.11	-0.16	-0.02	-0.20
Autonomy	0.24***	0.02	0.25**	0.02	0.25*	0.09
Family	0.17*	0.00	0.17	0.01	0.16	0.00

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Out of 13 values included in the scale, there is a significant negative connection in the entire sample ($N=222$) between religious values and peripheral organ donation ($r=-.17^*$) and some other relationships between the values and life organ donation. More specifically, there is a positive correlation with autonomy ($r=.24^{***}$), morality ($r=.19^{**}$), hedonism ($r=.19^{**}$), family ($r=.17^*$), and political ($r=.15^*$). Some discrepancies between the gender samples can be noticed. In the female group there is no significant connection between values and peripheral organs, but there are four positive links and two tendencies of correlation to basic life organs: health ($r=.20^*$), autonomy ($r=.25^{**}$), morality ($r=.24^{**}$), political ($r=-.18^*$), family ($r=.17, p=0.072$), and economic ($r=.17, p=0.063$). In the male group there was a noticeable link between hedonistic values and basic life organs ($r=.26^*$), scientific ($r=.21^*$) and autonomy ($r=.25^*$). In addition, peripheral organs correlate in a negative sense with religious values ($r=-.20, p=0.051$). To sum up, the results show that a negative relationship is related to religiosity values, whereas a positive one to hedonism, morality and autonomy. Other values appear irrelevant.

Summary of findings

An interesting conclusion drawn from these results is that the attitude towards donation is overall positive, and organs crucial for life seem to be more available if we rely on the respondents' readiness for donation. The core finding is that they are more willing to donate their life organs rather than peripheral ones, regardless of their gender. In our estimation this finding is not trivial and should be taken into account in a broader group of potential donors and recipients.

When psychological determinants or correlates are the focus, we could say that to some extent moral, hedonistic and freedom/autonomy values positively predispose a person to donating life organs, while religiosity and social desirability (in women) nega-

tively. We can further speculate on whether axiological factors are more relevant to life organ donation than social or interpersonal determinants or not. Similarly, donation of peripheral organs could be linked more closely to self-identity and the manner in which others perceive that person, which seems more evident in the female group. These basic questions need closer empirical examination.

Are these findings understandable from a psychological perspective? Is the men vs. women comparison fruitful? Let us have a closer look at these questions and speculate on aspects crucial in transplantation, as well as those related to it.

DISCUSSION

We expected that inner, subjective standards should play a significant role in people's attitudes towards that aspect and decisions they make in this regard. Surprisingly, religiosity seems to hamper donation rather than encourage it. Striving for social approval (desirability) is not at play, just like attractiveness and self-esteem. Some values are relevant, but not too closely linked with the decision to donate organs. These outcomes add to the aforementioned and oft-used Big Five personality traits. A stronger restraint from donating peripheral organs, exhibited mainly by women, requires some commentary.

External parts constitute our being an object of social perception and evaluation, and we both agree that this phenomenon is stronger in females. Thus, they are more fundamental to personal identity and how others perceive us when they see our bodies. An ID card is a good example of that, and everyone tries to provide the authorities with a good-looking photo. An attempt at giving up one's bodily features may be met with internal barriers, and even if donation is to take place after our death, we are at

this moment more reluctant to have our own image damaged in physically.

However, both significant and irrelevant empirical data obtained suggest that the determinants of organ donation can also be other than personality-based, perhaps more rooted in biology or temperamental factors. This cannot be excluded in any assumptions if psychology up to this day seems to be limited in its capability to explain *sui generis* human phenomena which are not exhibited by animals. Further research investigators, including ourselves, may focus on other distinct individual factors in a broader sense of the term, so that the importance of accumulated causal psychological attribution may be supported more strongly. One of the open questions concerns emotionality. For instance, the data collected in a pilot study by our students showed a negative link between emotional maturity, mainly in women, and peripheral organ donation ($r[56] = -.37$). This controversial index can serve as a ground for planning broader research on the role of emotionality in donation, its maturity and stability. Our approach is worth continuing and replicating. Some specific groups, e.g. soldiers and blood donors, can be subjected to studies. The latter have often donated several liters of blood over the years. Are they equally prone to donating their organs? Research will help answer such questions.

Transplantation circumstances may themselves shed more light on the problem. An open question concerns the relationship between the donor and the recipient, and their similarity. This reflection is rooted in a question that emerges, e.g. whom one donates a particular organ to: a film star or a vagabond? A righteous person or an immoral one? A fellow citizen or a foreigner? A member of the same religious group or a different one? A person who once harmed the donor or someone who is neutral? We are planning to conduct a similar study on non-Christian societies to see whether different global religious worldviews have any impact on the attitudes towards transplantation. For instance,

Jehovah witnesses are completely against it. The methodology used by Demir and Kumkale (2013) among Muslim respondents does not allow a direct comparison, but comparable methodologies can be applied in the future to look for universal predictors of RBPB.

Aside from medical, juridical, social, religious and personal/individual aspects such as an individual's story of life, sexual orientation, close relationships, or donor and recipient being complete strangers is interesting from the perspective of complex psychology. Suppose that a certain person lost an arm in a bomb attack and now a donor is available, a victim of a motorcycle crash. What if the recipient knew or suspected that the donor is in fact a terrorist who orchestrated a bomb attack? It can be reasonably assumed that they would be rather unwilling to accept an arm from someone who has caused the loss of theirs. Such questions and doubts may accompany such a transplant. Aside from being a medical fit, who is the donor? Were they amoral person or an immoral one? A thief, prostitute, criminal, priest, respectable citizen, actor, inventor, writer? If there is a dire need, then such questions do not carry such weight, but issues may arise once transplantation becomes an everyday commodity, with enough donors to choose from. The ongoing research will provide more results that will shed additional light on these yet unknown phenomena.

It emerged from the data we collected that donors commonly fear that their lives will not be properly taken care of. Some respondents were concerned with potential doctor's misconduct: "They might not treat me seriously enough to save my life if they have an interest in using my organs for somebody else." A potential donor may suspect that should they become a victim of an accident, they may not be given proper treatment. They may feel that street services or doctors might be prone to sacrificing this person so that someone else might use their organs instead. Therefore, such people may not be so willing to carry in their wallets a written organ donation declaration, because they feel

that without such a declaration there might be a higher chance that they will undergo a proper, life-saving treatment, instead of being treated as a donor. How difficult this dilemma is may depend on various psychological factors. Such nuances may modify one's attitude and hinder their willingness to donate their organs in case of an accident. A subjective estimation of one's survival chances can be of utmost concern in such an uncertain situation. In line with the above speculation is the claim that death anxiety causes the feelings of lack of control over one's own life, which then result in reluctance to donate organs (Katz et al., 2018; Dijker et al., 2019). If we add to the above the lack of trust towards medical professionals in case of life-threatening situations, as well as suspicions that medical personnel can forego treatment in order to gain an organ donor, it is no wonder that people may be reluctant to sacrifice themselves for others. One's own awareness of death or mortality salience may cause reluctance to altruistic behavior of organ donation (Hirschberger et al., 2008). In the future steps such aspects will be considered, and empirical evidence should lead to more conclusive answers to the problem. Surprisingly, future anxiety (see Zaleski, 1996) did not appear as related to donation decision. The phenomenon seems to contain many more unknown aspects to address during future investigations.

How can one use high utility of transplantation in medical and psychological terms so as to motivate potential donors to register as such? An example can be found in the recent work of the Dutch researchers (Steenart et al., 2018). Raising intentions via manipulation based on autonomy, coercion and reciprocity is not highly effective when it comes to minimizing anxiety. Indeed, a more fruitful motivational system, e.g. rooted in intrinsic motivation (Deci, 1975), is a challenge for scientists, social activists and politicians. The task for scientists is to raise awareness of such readiness, which does not cost much. Is donation readiness a more general phenomenon? Hence the question: Are blood donors (who often have donated dozens of liters of blood over the

years) also more prone to donating other body parts? It is obvious that while the supply of blood can be replenished, other body parts can be donated only once. Looking into the future, the actual frequency of deadly accidents (e.g. road, air) and diseases that are curable thanks to medical care allows one to predict an increase in demands for body parts as one of the prerequisites to saving someone's life. However, this study and other similar surveys offer some hope that people are ready to "share" their organs for the sake of others. Such an altruistic attitude, particularly towards "life organs", echoes Wilson's social biology belief (1975–2000) that human genes care for their own survival and mankind's existence. It is obvious is that kinship-based relations are and will be a predominant basis for donating organs (e.g. bone marrow) to the donor's own relatives, while still preserving the donor's life. Transplantation technology will make such procedures highly effective. Thus, long-lasting altruistic behaviors of caring for one another, as well as sharing food, shelter and territory, become enriched by a *sui generis* decision to donate body organs.

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