



Determination of Health Anxiety Level in Living Organ Donation

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ABSTRACT

The aim of this study was to determine the level of pre-donation health anxiety using the Short Form Health Anxiety Inventory (SHAI) questionnaire for persons who applied to donate their kidney to a relative in need, and to evaluate whether there was a difference between these donors and a control group who did not experience health problems. The study group was comprised of 30 patients who applied for kidney donation to a relative, while the control group was comprised of 30 age- and sex-adjusted healthy subjects whose relatives did not have any health problems. The SHAI, consisting of 18 questions and some sociodemographic characteristics, was administered to both groups. The study group consisted of 60 participants, 28 (46.7%) of whom were male and 32 (53.3%) of whom were female. The mean SHAI score of the case group was 10.3 ± 7.3 , while the mean of the control group was 17.6 ± 8.5 . The difference between the groups was statistically significant ($P = .001$). The mean score of those who were donating to their wife or husband was 20.0 ± 11.7 , while the mean score of those who donated to other relatives was 9.2 ± 6.1 . The difference was significant ($P = .014$). Our study found that the case group had significantly lower health anxiety than the control group. Furthermore, those who were donating to their spouse were found to have higher anxiety than those who were donating to other relatives.

TRANSPLANTATION is an optimal way of treating organ failure. Since the first transplant performed over 50 years ago, kidney transplants have become one of the most frequently performed transplants in humans. The seemingly unquestionable benefits of organ transplantation have led to the need for access to larger donor pools, which has necessitated improvements in the psychosocial assessment of donors [1].

Previous studies have shown that the quality of life of live organ donors is quite high after donation and their physical and mental health do not seem to be adversely affected [2,3]. In particular, it is reported that donors are mentally satisfied with their donation experience, which usually results in improved relationships with recipients [3]. However, live organ donors are also reported to experience health-related anxiety due to the fact that they will experience a major surgery and could suffer from a long recovery. In addition, they may be wary of having an unattractive surgical scar and being unable to perform physical activities [3–7].

Everyone experiences anxiety about their health at certain periods of their life. Indeed, a reasonable amount of health anxiety is critical for seeking appropriate healthcare when the need arises, and also helps patients avoid behavior that is harmful to health [8]. Severe health anxiety is defined as excessive fear that occurs as a result of misinterpreting common somatic sensations or symptoms [9].

Various tools have been developed to assess health anxiety [10]. Of these, the Health Anxiety Inventory (HAI) is one of the most frequently used [11]. The Short Form Health Anxiety Inventory (SHAI) has been reported to be as psychometrically robust as the HAI and is widely used to assess symptoms associated with health anxiety [12].

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The literature on the examination of concerns about organ donation is rather extensive [13–17]. However, to our knowledge, there is no study evaluating health anxiety among living organ donors using the HAI or SHAI questionnaires. The aim of this study was to determine the level of health anxiety (assessed using the SHAI) before transplantation in prospective donors who were being evaluated for organ donation to a relative, and to determine whether there were differences between controls whose relatives had no health problems.

MATERIALS AND METHODS

In this study, the case group comprised 30 patients who applied to the Nephrology Clinic of the Yeni Yuzyil University Gaziosmanpasa Hospital between July 15, 2018, and October 15, 2018, for the purpose of donating a kidney to a relative. The control group comprised 30 healthy subjects (adjusted for age and sex) whose relatives did not have any health problems.

The inclusion criteria were having applied to the nephrology clinic to donate a kidney to a relative diagnosed with renal failure, being aged between 18 and 70 years, having understood the necessary information for organ donation, having started the necessary medical procedures and examinations for organ donation with the nephrologist, not having any serious health problems, and agreeing to participate in the study. The exclusion criteria were having not started on the required medical procedures and examinations, being under 18 or over 70 years of age, and not agreeing to participate in the study.

The SHAI was administered to both groups. The SHAI is a self-reporting instrument consisting of 18 multiple-choice questions that assess health anxiety independently of physical health status. The questions measure worry about health, awareness of bodily sensations or changes, and fear of consequences of having an illness. Scoring of the scale is between 0–3 points for each item; a high score indicates a high level of health anxiety [11]. The SHAI has demonstrated good reliability and validity in clinical and nonclinical samples [12].

Statistical Analysis

All data were evaluated using SPSS version 20 software (IBM, Armonk, NY, United States). Variables were given as mean \pm standard deviation or frequency (percentage). χ^2 analysis was used to evaluate categorical variables. The independent samples *t*-test was used to compare continuous variables. $P < .05$ was considered significant.

RESULTS

The case group consisted of 30 participants, 16 (53.3%) of whom were male and 14 (46.7%) of whom were female, with a mean age of 35.8 ± 8.9 years. There was no significant difference between the case and control groups in terms of age and sex ($P = .883$ and $P = .301$, respectively). Smoking prevalence and income level were higher in the case group ($P = .001$ and $P = .028$, respectively). The most frequent donor-recipient relationship was siblings (11.7%). The sociodemographic characteristics of the groups are presented in Table 1.

The mean SHAI score of the case group was 10.3 ± 7.3 , while the mean of the control group was 17.6 ± 8.5 . The

Table 1. Sociodemographic Characteristics of the Groups

	Case Group n = 30	Control Group n = 30	<i>P</i>
Sex, n (%)			
Male	16 (57.1)	12 (42.9)	.301
Female	14 (43.8)	18 (56.2)	
Age, mean \pm SD	35.8 ± 8.9	34.7 ± 11.8	.883
Education, n (%)			
Primary school	13 (48.1)	14 (51.9)	.595
High school	15 (55.6)	12 (44.4)	
University	2 (33.3)	4 (66.7)	
Income, n (%)			
High	17 (68.0)	8 (32.0)	.028
Middle	12 (35.3)	22 (64.7)	
Low	1 (100)	0 (0)	
Marital status, n (%)			
Married	25 (51.0)	24 (49.0)	.739
Other status	5 (45.5)	6 (54.5)	
Child, n (%)			
Present	25 (53.2)	22 (46.8)	.347
Absent	5 (38.5)	8 (61.5)	
Smoking, n (%)			
Yes	19 (76.0)	6 (24.0)	.001
No	11 (31.4)	24 (68.6)	
Opinion about donation			
Positive	27 (50.9)	26 (49.1)	.688
Negative	3 (42.9)	4 (57.1)	

Abbreviation: SD, standard deviation.

difference between the groups was statistically significant ($P = .001$).

The mean SHAI score of the smokers in the entire study group was significantly lower than that of the non-smokers ($P = .037$). On the other hand, there was no difference between smokers and nonsmokers in the control group in terms of SHAI score ($P = .764$).

The mean score of those who were donating their kidney to their spouse was 20.0 ± 11.7 , while the mean score of the kidney donors who were donating to other relatives was 9.2 ± 6.1 . The difference was significant ($P = .014$).

The SHAI score of those who previously had a negative opinion on organ donation was significantly higher in the case group ($P = .045$), although there was no significant difference in the control group ($P = .692$).

In the study, no significant difference was found between SHAI scores with regard to factors such as sex, age, educational status, income status, marital status, having children, and whether dialysis was performed ($P > .05$ for each case).

In the control group, the SHAI score was higher in unmarried individuals, those without children, and those who were classified as middle income ($P = .034$, $P = .003$, and $P = .045$, respectively). The SHAI score distribution of the study group is presented in Table 2.

DISCUSSION

In the current study, we evaluated pre-donation health-related anxiety among live organ donors with the SHAI

Table 2. SHAI Score Distribution of the Study Group

	Case Group SHAI Score	<i>P</i>	Control Group SHAI Score	<i>P</i>
Sex				
Male	9.06 ± 6.26	.306	17.00 ± 8.46	.317
Female	11.85 ± 8.39		18.05 ± 8.82	
Education				
Primary school	11.30 ± 6.06	.688	18.35 ± 6.62	.562
High school	10.06 ± 8.72		18.25 ± 10.86	
University	6.50 ± 3.53		13.25 ± 7.36	
Income				
High	10.05 ± 6.06	.940	12.50 ± 7.15	.045
Middle	10.91 ± 9.37		19.50 ± 8.38	
Low	9.00		-	
Marital status				
Married	10.48 ± 7.97	.854	16.00 ± 8.42	.034
Other status	9.80 ± 2.86		24.16 ± 5.77	
Child				
Present	10.36 ± 8.02	.991	15.00 ± 6.57	.003
Absent	10.40 ± 2.07		24.87 ± 9.56	
Smoking				
Yes	10.05 ± 7.71	.764	15.00 ± 6.78	.409
No	10.90 ± 6.97		18.29 ± 8.94	
Opinion about donation				
Positive	9.48 ± 6.95	.045	17.38 ± 8.54	.692
Negative	18.33 ± 6.80		19.25 ± 9.74	

Abbreviation: SHAI, Short Form Health Anxiety Inventory.

questionnaire and compared results with the control group. To our knowledge, this is the first study to evaluate health-related anxiety in live organ donors with the SHAI _under questionnaire. The SHAI score of the case group was significantly lower than the control group. In other words, health-related anxiety among those who applied to donate a kidney to a relative was significantly lower than those who had no health problems. Although this situation seems contradictory, it is in fact compatible with the literature. In previous studies, this seemingly contradictory result was explained by the satisfaction experienced by donors due to the feeling that they were increasing the quality of life of the organ recipient [2,3].

This expectation of the donor is rather realistic and may translate to a low amount of health-related anxiety as they consider the benefits they can provide to the recipient by their donation. However, this does not mean that live organ donors do not have any anxiety related to donation. A small proportion of donors experience ambivalence in the decision to donate, usually due to the possibility of temporary restrictions caused by surgery, post-operative pain, future health, the consequences of medical examinations, or concerns about the health or lifestyle of the recipient [18–20]. It has been shown that some donors experience anxiety before organ donation, which may decrease their willingness to donate [21]. Other explanations also exist: some donors may choose to hide their concerns, as the idea of restoring a relative's health may outweigh their concerns, or the fear of being shamed by others if they choose to refuse donation. Furthermore, some may believe they may feel guilty later on

by refusing donation, while it is also possible that the donors may be ignorant of the risks of transplantation or the procedure even if they are provided sufficient explanations. Finally, persons with over-eloquent attitudes could choose to conceal or underestimate their health-related anxiety out of fear that their reservations could prevent them from donating; they could also be sensitive to the possibility of their relative learning about their concerns regarding donation. All of these problems, reservations, and beliefs may lead to post-transplant regret or psychiatric morbidity. If we are able to determine in advance whether such problems may develop, we can protect these people at the threshold of a life-changing decision. Indeed, one particular study reported a lack of detailed discussion with donors on the effects of donation and the results of the surgery. Therefore, it is feasible to assume that health-related anxiety is actually higher among donors than is reported in the literature. It has also been stated that it may shed more light on how donors can actually learn from others' experiences, especially in situations where a prospective donor and his or her family members and/or friends can obtain information from previous donors, especially when the donor is biased [3]. For instance, providing the prospective donor with a chance to talk to someone who has previously donated an organ can increase the prospective donor's understanding of what to expect if they go through with the donation, which will without doubt contribute to the donor's perception of the whole ordeal of organ donation. Anxiety is one of the most prominent obstacles in organ donation and it cannot be eliminated completely. However, lowering anxiety by providing donors with the chance to make informed decisions may actually increase the number of people willing to consider organ donation.

One of the interesting results in our study was the higher average anxiety level among those who were donating to their spouse. However, only 3 of the subjects were in this situation, which could limit statistical comparisons. Another important fact to consider is that all 3 of these subjects were females and 2 were housewives. Therefore, the idea of their husbands suffering any serious medical problem in the absence of a secondary income could have adversely affected their perception of health and could have increased anxiety. Similarly, it was shown in another study that females who were donating their kidney to a spouse or child were more prone to stress [22]. The study reported that these donors felt worried about the whole burden of housework and about being unable to perform household chores, especially after the operation [22]. This result seems to be compatible with our findings. Nevertheless, the number of subjects was too low to allow us to come to a conclusion, and therefore our findings require verification through studies with higher numbers of donors.

There were some limitations in our study. Generalization may be a problem, as the study was conducted with a limited number of participants in a single center and there may be differences in patient profiles and characteristics in different centers. Although the level of health-related anxiety is a

critical obstacle for organ donation, there are other factors that affect the decision for live organ donation. The absence of other factors that contribute to this decision can be considered another limitation of our study.

CONCLUSION

We found that prospective organ donors demonstrate lower levels of health-related anxiety compared to controls. The health anxiety experienced by those who were donating a kidney to their spouse was significantly higher than those donating to other relatives. In our study, only anxiety that had significant effect on organ donation was evaluated. Multicenter large-scale studies can be useful with a valid assessment tool that assesses all factors affecting organ donation.

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