



# Who signs an organ transplant donor card? A study of personality and individual differences in a sample of Israeli university students

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## Abstract

The present study investigated whether certain personality variables (fear of death, body image and authoritarianism) differentiate potential organ transplant donors from non-donors. Two hundred and twenty Israeli students participated in the study. Results showed a significant correlation between being an organ donor cardholder (hereinafter: “donor”) and having acquaintance with other donors and possessing more information on organ donation. Donors were found to have more positive general attitudes regarding organ donation and more positive specific attitudes towards personal willingness to donate organs. Controlling for gender differences, donors were found to report significantly less conscious fear of death, less authoritarianism and better body image perception than non-donors do. The present study emphasizes the importance of personality differences in willingness to donate one’s organs, with suggested implications for intervention programs.

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*Keywords:* Organ donation; Body image; Conscious fear of death; Authoritarianism

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## 1. Introduction

Organ transplanting, a medical procedure with lifesaving potential, is considered a marvel of modern technology. Organ transplant surgery success rates are rising constantly. The chief

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obstacle to this technology is the shortage of donors. Despite major educational campaigns among the general public and medical personnel, the supply of organs for transplanting remains far short of demand. Survey results reveal that many people are on waiting lists for organs (Evans, Orians, & Ascher, 1992) and many of them eventually die because no organs are available in time. In the United States alone, over 60,000 such patients either die or are maintained on suboptimal therapy (Amir & Haskell, 1997; Evans et al., 1992). The present study explores psychological aspects of willingness to donate organs.

Proposed explanations of the organ shortage fall into two categories, one focusing on the medical system and the other on donor willingness. (For an extensive review see Horton & Horton, 1991; Radecki & Jaccard, 1997, 1999.) Studies show that in countries with established organ donor centers (Davis, Lucier, & LoGerfo, 1986; Lee & Kissner, 1986), outreach to larger population groups increases the number of transplants (Hazinski, 1987). Other countries invoked constitutional measures permitting medical systems to request organs in all fatality cases (Gaber, Hall, Phillips, Tolley, & Britt, 1990). Another constraint concerns medical staff awareness and difficulties in negotiating with potential donors' families to obtain the necessary permission (Corlett, 1985).

The present study addresses willingness to sign donor cards, exploring the effects of psychological aspects and personality variables on awareness and willingness alike. It should be viewed as part of an investigation into the reasons that so few people hold donor cards.

Donor card terms vary from one country and culture to another, with several constitutional options customarily available (Miller, 1987). An increase in cultural studies of organ donation (Alden & Cheung, 2000; Martinez et al., 2001; Shih et al., 2001; Yeung, Kong, & Lee, 2000) recently emerged, emphasizing the importance of the cultural context in understanding attitudes and willingness towards organ donation.

The controversy regarding criteria for determining death and the attendant policies are considered a chief cause of dilemmas concerning organ donation and of the shortage of organs in various locations throughout the world (Parks, Barber, & Painvin, 1986). Traditional Judaism, for example, defines death as cessation of cardiac and pulmonary functioning. However, the Chief Rabbinate of Israel determined that one might remove an organ from a person proved to be brain dead even if that person's heart is still beating (Livni, 1997). It is becoming increasingly evident that religious faith does not constitute grounds for refusing to donate organs. Judaism, Islam and Christianity all support the idea of organ donation (Livni, 1997). Studies found that the families of people holding organ donor cards are more likely to approve transplants than those of people who do not (Manninen & Evans, 1985; Perkins, 1987; Prottas, 1983; Simmons, Bruce, Bienvenue, & Fulton, 1974).

Findings have shown that the general population is usually aware of organ donation and the importance of transplants, maintaining solidarity with the suffering of patients requiring such transplants and a positive attitude towards the procedure (Manninen & Evans, 1985; Nolan & Spanos, 1989). However, few of those with positive attitudes defined themselves as potential donors (Corlett, 1985; Gallup, 1985, 1986, 1987, 1994; Hessing & Elffers, 1986; Kittur, Hogan, Thukral, McGaw, & Alexander, 1991).

Attitudes towards helping others, advancement of science, monetary benefits (Lee & Kissner, 1986; Perkins, 1987), and acquaintance with other donors (Nolan & Spanos, 1989) were variables found to correlate with actual holding of a donor card and to enhance willingness for eventual

signing of such cards. Some studies indicated that donors are more highly educated, less conservative, less religious and more positively inclined towards science than non-donors; furthermore, there was a higher percentage of women among donors (Cleveland, 1975; Cleveland & Johnson, 1970). Other studies found donors to be younger (under 40) and of higher socioeconomic status than non-donors, with no gender differences (Amir & Haskell, 1997), although Parizi and Katz (1986) did reveal a higher percentage of white persons among donors.

Besides addressing background variables significant to organ donation willingness, we explored the additional contribution of three personality variables—fear of death, authoritarianism and body image perception—in an integrated predictive model.

Earlier studies already discovered that non-donors exhibited greater anxiety about their own death and bodily integrity (see below) than did donors (Cleveland & Johnson, 1970). In subsequent studies, Cleveland (1975) accorded personality features even greater attention. The findings indicated that in general, those who did not sign donor cards displayed more fear of death and burial than did donors; moreover, they tended to avoid thinking about their mortality, believed more in an afterlife and did not want their bodies mutilated after death. Many researchers have noted the idea that fear of death is an important element in the donation decision process (Brug, Vugt, Borne, Brouwers, & Hooff, 2000; Cacioppo & Gardner, 1993; Horton & Horton, 1991; Radecki & Jaccard, 1997; Robbins et al., 2001; Siminoff, Gordon, & Arnold, 2001; Skowronski, 1997). However, body image and authoritarianism have not been emphasized in recent empirical work.

Hessing and Elffers (1986) found that for people with low self-esteem, a positive or non-negative attitude towards death created an opportunity for improving self-esteem by signing an organ donor card. Their findings indicate that anxiety engendered by fear of premature determination of death correlates significantly with attitude towards organ donation (irrespective of self-esteem).

Most researchers who included fear of death or death-related anxiety among the parameters examined, reported significant differences between participants committed to organ donation and others, with the latter reporting greater fear/anxiety or less acceptance of death (Amir & Haskell, 1997; Hessing & Elffers, 1986; Lefcourt & Shepherd, 1995; Robbins, 1990; Skowronski, 1992). Fear and negative attitudes were believed to have more impact on the donation decision than positive attitudes and beliefs (Parizi & Katz, 1986). Moreover, Skowronski (1997) reports that organ donation decision varies by organ, which provides an intriguing conceptual tie-into the body image construct explored in the current paper.

Body image perception was found to be correlated with willingness to donate organs. Aspects of body perception, specifically anxiety regarding bodily integrity, were found to be higher among non-donors than among potential donors (Cleveland, 1975; Fisher, 1986). Pessemier, Bemmaor, and Hanssens (1977) noted that participants who considered body image less central and less important were more likely to consent to organ donation. One possible explanation could be the centrality of body image in the concept of self, wherein loss of body image on one's death might be interpreted in terms of losing one's identity (Belk, 1988). In the present study, fear of death and body image were assumed to correlate with likelihood of signing organ donor cards.

The last personality variable to be explored in this study is authoritarianism. Greenberg et al. (1990) defined authoritarianism both as a trait and as behavior characterized by the tendency to respect authority, inflexibility, conventionality and contempt of others.

Simmons et al. (1974) found a greater degree of conventionality among persons who did not sign donor cards. According to Simmons et al. (1974), conventionality, a characteristic of

authoritarian personalities, is liable to constitute an obstacle to organ donation among such people, especially because of the innovative aspects of this concept and their belief that such behavior runs contrary to tradition and religion.

Greenberg et al. (1990) discovered that aggression and hostility, also characteristic of authoritarianism, correlate with refusing to help others and perform acts of altruism, as well as with high levels of fear and anxiety of death. In addition, Lefcourt and Shepherd (1995) found correlations between authoritarianism and fear of death, interpreting authoritarian persons' thoughts about organ donation as evocative of this fear. As such, authoritarian people tend to avoid signing donor cards in order to avoid attendant fears of death and, in addition, fulfill their innate need to control their environment and lives.

The present study's hypotheses are as follows:

- H1: Significant differences are expected between donors and comparison groups in attitudes towards organ donation and background characteristics.
- H2: Significant differences are expected between donors and comparison groups regarding the three personality variables—fear of death, body image and authoritarianism—with the latter exhibiting the following characteristics relative to the former:
  - (2a) Greater conscious fear of death.
  - (2b) Negative body image.
  - (2c) Greater authoritarianism.

## 2. Method

### 2.1. Participants

Participants consisted of 290 university students  $N = 80$  men (28%) and  $N = 210$  women (72%) of mean age 25.38 ( $SD = 2.38$ ) and with 14.11 ( $SD = 1.19$ ) years of formal education. The majority  $N = 218$  (75%) defined themselves as secular,  $N = 61$  (21%) as traditional and  $N = 11$  (4%) as religious. In Israel, the concept “traditional” indicates that one adheres to some religious laws and generally maintains a positive attitude towards religion. In this study, we merged the “religious” and the “traditional” groups into one group, a “religious group.” Eighty-seven participants (30%) reported that they held organ transplant cards. Furthermore,  $N = 55$  (19%) reported that this study is their first exposure to thoughts regarding organ donation and  $N = 128$  (44%) reported that they did not know any organ donor cardholders. Only 70 (24%) knew more than two donors. Among the donors, 100% reported that they had committed to donate any organ whatsoever. The student sample in the specific university was found to be representative of the general Israeli university student population. Moreover, it should be noted that a student population is highly relevant to the present organ donation study because the ideal and typical donor is a healthy young adult who has died in an intensive care unit from a head trauma (see: e.g., Horton & Horton, 1991) and this (student) group typically involves untimely, unforeseen occurrences (e.g., suicide, care accident), with the nature of such losses resulting in the availability of viable organs that are not damaged by illness or prolonged abuse (e.g., substance abuse) at the time of death (see, e.g., Radecki & Jaccard, 1999).

## 2.2. Measures

### 2.2.1. Attitudes towards organ donation questionnaire (Nolan & Spanos, 1989)

This questionnaire was based on Nolan and Spanos (1989) and was previously adapted for Hebrew by Amir and Haskell (1997) to assess different dimensions in respondents' attitudes towards organ donation. The questionnaire consisted of 12 general questions relating to facts about organ donation, inquiring whether respondents had made any practical arrangements to donate their organs (such as stipulating a donation in their will or expressing their wish to a family member) and which organs were to be donated. Also included were several questions ranked on a Likert-type scale relating to attitudes, motivations and feelings towards organ donation. One major section of this questionnaire addressed non-donors as the target group, ranking the effects of various factors as potential reasons for not obtaining organ donor cards. The questionnaire was initially read by 20 judges, graduate students in psychology and medicine, who were asked to indicate whether any relevant elements were missing and to assess the clarity of the questions, including the Hebrew version (Amir & Haskell, 1997). In the present study, the Cronbach's  $\alpha$  was 0.85.

### 2.2.2. Muchnik fear of death scale (Muchnik & Rosenheim, 1982)

Conscious fear of death was ranked according to a self-administered questionnaire developed by Muchnik and Rosenheim (1982) with 14 items focusing on fear of death of self. Factor analysis revealed three factors; Results of Death, Fear of Not Existing and Denial, the last negatively correlated with the first two. The questionnaire has been extensively used in Israel (e.g., Amir, 1987). Cronbach's  $\alpha$  in the present study was 0.80.

### 2.2.3. Body cathexis, body perception (Jourard & Secord, 1954, 1955)

In the body perception questionnaire, respondents are asked to evaluate and address 16 indicators and various areas of the body in three respects:

- A. Ranking the true size of each part of one's body according to a proposed scale ranging from especially large (1) to especially small (7).
- B. Ranking the ideal size of each body part according to the same scale.
- C. Feelings about the body part, ranked on a scale of 1 (very positive) to 5 (very negative).

The questionnaire also enables determination of three separate scores, from which two dimensions may be derived reflecting view of, and attitude towards, one's body:

1. *Ratio*: The gap between real and ideal body image, calculated as the square root of the squares of the differences between perceived real and ideal images. This indicator evaluates comparative cognitive judgment: The greater the gap, the lower the body image.
2. *Body*: Emotional attitude towards the body, expressing cumulative feelings towards each body part. The higher the score, the more positive the feelings about one's body. This indicator essentially reflects attitude and concern towards the body. The questionnaire was validated by Jourard and Secord (1954, 1955) through a series of structural validity tests. A study by Theodorakis, Doganis, and Bagiatis (1991) provided satisfactory validation data regarding

structure and differentiation. Translation of this questionnaire into Hebrew was accomplished as part of a doctoral dissertation by Palgi (1995). Cronbach's  $\alpha$  in the present study were 0.81, 0.85 and 0.87, for real, ideal and emotional body perception, respectively.

#### 2.2.4. *Modified Gray's questionnaire (Gray, 1977)*

The scale consists of 12 statements concerning feelings towards overall physical self-perception. Subjects are asked to rank the extent to which each statement applies to them on a scale of 1–5. Sample statements: “When I look at my body in the mirror, I feel bad” or “I am confused when people tell me I look good,” etc. The overall score is the total number of points assigned by subjects. The higher the score, the better the physical self-perception. The final score provides a clear indication of the intensity of negative or positive feelings concerning overall physical self-perception, the extent to which subjects accept their bodies and are content with their appearance or reject their bodies and feel bad about them. The present study found similar correlation patterns: Significantly positive for emotional attitude towards the body and overall physical self-perception ( $r = 0.63$ ;  $p < 0.001$ ) and negative for the gap between real and ideal body image and the other two variables ( $r = 0.52$ ;  $p < 0.001$ ) and ( $r = 0.55$ ;  $p < 0.001$ ), respectively. A high score for physical self-perception reflects a negative body image, whereas high scores for both the other variables reflect a positive one. This questionnaire was translated as part of Palgi's (1995) doctoral dissertation. Cronbach's  $\alpha$  in the present study was 0.82.

#### 2.2.5. *Right wing authoritarian scale (RWA) (Altemeyer, 1988)*

This questionnaire comprises 30 statements. Subjects are asked to rank the extent to which they agree or disagree with each on a scale of 1–9 (1 = strongly disagree; 5 = neither disagree nor agree and 9 = strongly agree). The authoritarian score is calculated as the average of the subject's responses. The higher the score, the more authoritarian the subject is considered to be. The internal reliability of the original questionnaire ranges between 0.77 and 0.95. Cronbach's  $\alpha$  in the present study was 0.85.

### 2.3. *Procedure*

The questionnaire was administered in large lecture halls, with instructors' consent. The ethics committee of the Department of Behavioral Sciences approved the study. Participation was voluntary. The order in which questionnaires were presented was randomized.

## 3. Results

### 3.1. *Correlations*

#### 3.1.1. *Background variables and declared willingness to donate organs*

$\chi^2$  analyses revealed no significant correlations between participants' gender and their declared willingness to donate organs (i.e. whether or not they were organ donor cardholders) and religiosity ( $\chi^2[290, 1] = 0.74$ , Ns. and  $\chi^2[290, 1] = 2.76$ , Ns., respectively).

To explore differences between donors and non-donors regarding age, we performed an ANOVA with declared willingness for donation as the independent variable and age as the dependent variable. A significant effect was obtained ( $F[1, 288] = 8.61, p < 0.01$ ), with donors found to be older ( $M = 26, SD = 2.57$  and  $M = 25, SD = 2.24$  for donors and non-donors, respectively). To address this issue in greater detail, we divided participants into three groups, young (19–25 years), intermediate (26–31 years) and older (32–44) and found that most of the non-donors were in the younger group (81% of the non-donors), whereas donors predominated in the intermediate group (29% of donors vs. 18% of non-donors). The last age group (32–44) included lower percentages of both donors and non-donors (2% and 0.8%, respectively).

### 3.1.2. *Background and personality variables*

To determine and control the effects of background variables on participants' declared organ donation willingness, we calculated the correlations between these variables and the personality variables, followed by a MANOVA with gender as the independent variable and the personality variables as the dependent variables. Significant gender differences were obtained (Wilks'  $\lambda[5, 284] = 0.90, p < 0.001$ ), with women found to report a greater conscious fear of death ( $F[1, 288] = 11.58, p < 0.001$ ) and less authoritarianism ( $F[1, 288] = 3.9, p < 0.05$ ) than men ( $M = 4.19, SD = 0.93$  and  $M = 3.97, SD = 1.40$  for men and women, respectively). Furthermore, women reported a broader gap between real and ideal body image ( $F[1, 288] = 11.48, p < 0.001$ ;  $M = 3.20, SD = 1.44$  and  $M = 3.83, SD = 1.40$ ), a more negative emotional attitude towards their bodies ( $F[1, 288] = 4.3, p < 0.05$ ;  $M = 57.58, SD = 9.35$  and  $M = 55.25, SD = 8.22$ ) and a more negative overall physical self-perception ( $F[1, 288] = 12.07, p < 0.001$ ;  $M = 41.44, SD = 6.6$  and  $M = 38.62, SD = 6.0$ , respectively).

Possible effects of religiosity on personality variables were assessed according to a MANOVA with religiosity (religious vs. secular) as the independent variable and the personality variables as the dependent variables. No significant differences were revealed.

Correlations between age and personality variables were analyzed using Pearson's correlation coefficients. Significant negative correlations were obtained between participant's age and perceived body image gap ( $r = -0.20, p < 0.001$ ), conscious fear of death ( $r = -0.14, p < 0.05$ ), and authoritarianism ( $r = -0.15, p < 0.01$ ), while significant positive correlations were found for emotional attitude towards one's body, ( $r = 0.14, p < 0.01$ ), and overall physical self-perception ( $r = 0.13, p < 0.01$ ).

In conclusion: As gender, age and declared organ donation willingness were found to be correlated with personality variables, we controlled for participants' age and gender in all succeeding initial analyses.

### 3.1.3. *Attitudes towards donation and declared willingness to donate organs*

Differences in attitude towards donation between donor cardholders and non-donors were elucidated by a MANCOVA with declared willingness (donors vs. non-donors) and gender as the independent variables and age as a covariant. Four attitudes towards donation served as the dependent variables. A significant declared willingness effect was obtained (Wilks'  $\lambda[4, 283] = 0.77, p < 0.001$ ), with donors reporting more positive general attitudes towards donation ( $F[1, 286] = 43.29, p < 0.001$ ) and agreeing with the statement that organ donation is a good idea for themselves ( $F[1, 286] = 82.5, p < 0.001$ ). No significant difference was observed for the

statement indicating that donors should be permitted to stipulate the specific use to be made of their organs ( $F[1, 286] = 0.17$ , Ns.) or the claim regarding presumed consent, maintaining that a deceased person's organs may be used if no explicit family agreement is secured or it is known that the deceased was opposed to donation ( $F[1, 286] = 3.11$ , Ns.). No effects were noted for either gender (Wilks'  $\lambda[4, 283] = 0.98$ , Ns.) or the interaction of gender and declared willingness (Wilks'  $\lambda[4, 283] = 0.99$ , Ns.). For means and standard deviations, see Table 1.

$\chi^2$  tests were also performed to examine differences between donors and non-donors regarding acquaintance with other donors and familiarity with the organ donation issue as a whole. Significant correlations were found between participants' thoughts about organ donation and willingness to donate organs ( $\chi^2[290, 1] = 9.64$ ,  $p < 0.01$ ), with donor cardholding more prevalent among those who had been exposed to the organ donation issue before participating in this study (see Table 2).

Furthermore, willingness correlated significantly with acquaintance with other cardholders ( $\chi^2[290, 2] = 37.23$ ,  $p < 0.001$ ), rising concomitantly with the number of such acquaintances (see Table 3).

### 3.2. Personality variables

Three separate MANCOVAs were performed, with donor/non-donor and gender as independent variables, age as a covariant and fear of death, body image and authoritarianism as the respective dependent variables for each. Means and standard deviations are shown in Table 4.

Table 4 indicates the following:

Table 1  
Means and standard deviations: attitudes towards organ transplants

| Variables  | Donors   |           |          |           | Non-donors |           |          |           |
|--|----------|-----------|----------|-----------|------------|-----------|----------|-----------|
|  | Women    |           | Men      |           | Women      |           | Men      |           |
|  | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i>   | <i>SD</i> | <i>M</i> | <i>SD</i> |
| General positive attitudes   | 2.5      | 1.7       | 2.3      | 1.8       | 2.4        | 1.7       | 2.2      | 1.7       |
| Good idea for me   | 4.0      | 2.0       | 3.0      | 2.0       | 3.2        | 2.0       | 2.9      | 2.1       |
| Stipulate the specific use   | 6.7      | 0.9       | 6.6      | 0.9       | 4.8        | 1.7       | 4.4      | 1.9       |
| Presumed consent: using<br>organs if no explicit<br>refusal is expressed | 6.9      | 0.3       | 6.9      | 0.3       | 6.0        | 1.3       | 5.6      | 1.8       |
| <i>N</i>   | 60       |           | 27       |           | 150        |           | 53       |           |

Table 2  
Attitudes towards organ donation and willingness to do so

|            | First encounter with issue |                          |                        |
|------------|----------------------------|--------------------------|------------------------|
|            | No                         | Yes                      | Total                  |
| Donors     | ( <i>n</i> = 7) 12.73%     | ( <i>n</i> = 80) 34.04%  | ( <i>n</i> = 87) 30%   |
| Non-donors | ( <i>n</i> = 48) 87.27%    | ( <i>n</i> = 155) 65.96% | ( <i>n</i> = 203) 70%  |
| Total      | ( <i>n</i> = 55) 18.97%    | ( <i>n</i> = 235) 81.03% | ( <i>n</i> = 209) 100% |

Table 3  
Acquaintance with cardholders and organ donation willingness

|            | Acquaintance with donor cardholder |                         |                         | Total                  |
|------------|------------------------------------|-------------------------|-------------------------|------------------------|
|            | None                               | One or two              | More than two           |                        |
| Donors     | ( <i>n</i> = 22) 17.32%            | ( <i>n</i> = 25) 26.32% | ( <i>n</i> = 40) 58.82% | ( <i>n</i> = 87) 30%   |
| Non-donors | ( <i>n</i> = 105) 82.68%           | ( <i>n</i> = 70) 73.68% | ( <i>n</i> = 28) 41.18% | ( <i>n</i> = 203) 70%  |
| Total      | ( <i>n</i> = 127) 43.79%           | ( <i>n</i> = 95) 32.76% | ( <i>n</i> = 68) 23.45% | ( <i>n</i> = 209) 100% |

Table 4  
Means and standard deviations: personality variables

| Variables                        | Donors   |           |          |           | Non-donors |           |          |           |
|----------------------------------|----------|-----------|----------|-----------|------------|-----------|----------|-----------|
|                                  | Women    |           | Men      |           | Women      |           | Men      |           |
|                                  | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i>   | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Conscious fear of death          | 56.93    | 12.4      | 50.41    | 11.09     | 62.6       | 12.24     | 57.7     | 13.68     |
| Real-ideal body image gap        | 3.4      | 1.4       | 2.51     | 1.15      | 4.0        | 1.36      | 3.56     | 1.46      |
| Emotional attitudes to body      | 56.28    | 9.0       | 64.15    | 8.81      | 54.83      | 7.87      | 54.22    | 7.76      |
| Overall physical self-perception | 39.13    | 6.21      | 43.96    | 6.5       | 38.41      | 5.93      | 40.15    | 6.33      |
| Authoritarianism                 | 3.74     | 0.72      | 3.78     | 0.75      | 4.06       | 0.87      | 4.4      | 0.94      |
| <i>N</i>                         | 60       |           | 27       |           | 150        |           | 53       |           |

(a) *Conscious fear of death*: A significant declared organ donation willingness effect was obtained ( $F[1, 285] = 12.33, p < 0.001$ ), with donors reporting less conscious fear of death than non-donors. A significant gender effect was observed as well ( $F[1, 285] = 8.6, p < 0.01$ ), with men reporting less fear than women. Gender-willingness interaction was not significant ( $F[1, 285] = 0.25, Ns.$ ).

(b) *Body image*: The effect obtained for willingness was significant (Wilks'  $\lambda[3, 283] = 0.91, p < 0.001$ ), with donors reporting less of a gap between real and ideal body image ( $F[1, 285] = 15.44, p < 0.001$ ), better overall physical self-perception ( $F[1, 285] = 5.92, p < 0.01$ ) and more positive emotional attitudes towards their bodies ( $F[1, 285] = 21.9, p < 0.001$ ). A significant gender effect was noted as well (Wilks'  $\lambda[3, 283] = 0.95, p < 0.01$ ), with women having a wider body image gap ( $F[1, 285] = 8.33, p < 0.01$ ), more negative attitudes towards their bodies ( $F[1, 285] = 7.6, p < 0.01$ ), and lower overall physical self-perception ( $F[1, 285] = 11.94, p < 0.001$ ). Gender-willingness interaction was significant as well (Wilks'  $\lambda[3, 283] = 0.95, p < 0.01$ ), although only for negative emotional attitudes towards the body ( $F[1, 285] = 13.68, p < 0.001$ ) and not for body image gap ( $F[1, 285] = 1.38, Ns.$ ) or overall physical self-perception ( $F[1, 285] = 3.27, Ns.$ ). Gender differences were significant regarding donors ( $F[1, 128] = 15.41, p < 0.001$ ), with males reporting more positive emotional attitudes towards their bodies than females. No significant gender differences were observed among non-donors ( $F[1, 128] = 0.57, Ns.$ ). Another significant difference was revealed between male donors and non-donors, with the former reporting significantly more positive emotional attitudes towards their bodies than the latter ( $F[1, 285] = 25.01, p < 0.001$ ). No significant difference of this type was noted among female participants ( $F[1, 128] = 0.88, Ns.$ ).

Table 5  
Correlations among personality variables

| Variables                           | 1       | 2       | 3     | 4     | 5 |
|-------------------------------------|---------|---------|-------|-------|---|
| 1. Real-ideal body image gap        | –       | –       | –     | –     | – |
| 2. Emotional attitudes to body      | –0.52** | –       | –     | –     | – |
| 3. Overall physical self-perception | –0.55** | 0.63**  | –     | –     | – |
| 4. Conscious fear of death          | 0.20**  | –0.03   | –0.11 | –     | – |
| 5. Authoritarianism                 | 0.11    | –0.50** | 0.02  | 0.18* | – |

Note:  $N = 290$  (two tailed test).

\* $p < 0.05$ ; \*\* $p < 0.001$ .

(c) *Authoritarianism*: A significant willingness effect was obtained ( $F[1, 285] = 13.0, p < 0.001$ ), with donors reporting significantly lower levels of authoritarianism than non-donors. The gender effect was significant as well ( $F[1, 285] = 4.76, p < 0.05$ ), with males reporting significantly higher levels of authoritarianism than women. Gender-willingness interaction was insignificant ( $F[1, 285] = 1.77, Ns.$ ).

### 3.3. Discriminant analyses—towards an integrated model

Table 5 shows correlations among the personality variables. The table reveals several significant interrelationships (among the personality and background variables, respectively and between the two groups). It is important to evaluate the relative contribution of each predictor, controlling for shared variance in predicting participants' declared organ donation willingness (donors vs. non-donors). Accordingly, a single discriminant analysis model was applied to estimate the extent of donor–non-donor discrimination and prediction by background variables (i.e. age and gender) and personality variables (i.e. conscious fear of death, authoritarianism and the three body image dimensions).

Entering age, gender, conscious fear of death, authoritarianism and the three body image dimensions in one block revealed a significant fit for the overall prediction model (Wilks'  $\lambda[7, 282] = 0.86, p < 0.001$ ; Approx  $F[7, 282] = 6.65, p < 0.001$ ; E.V. = 0.16; C.R. = 0.38;  $\chi^2[290, 7] = 43.45, p < 0.001$ ). However, it was found that only the three personality variables were responsible for the significant predictive discrimination between donors and non-donors (conscious fear of death: Wilks'  $\lambda[7, 282] = 0.88, p < 0.01$ ; authoritarianism: Wilks'  $\lambda[7, 282] = 0.87, p < 0.001$ ; negative emotional attitudes towards one's body Wilks'  $\lambda[7, 282] = 0.87, p < 0.05$ ). This model predicted and correctly classified 93% of non-donors and 35% of donors, with a total classification rate of 75% (for intercorrelations see Table 5).

## 4. Discussion

The findings of the present study may broaden our understanding of the role played by personality variables in determining individual differences regarding organ donation willingness and may embody several potentially significant implications for increasing the prevalence of donation.

#### 4.1. *Background variables and organ donation willingness*

This study, like previous studies by Parizi and Katz (1986) and Amir and Haskell (1997), found no significant correlation between gender and organ donation willingness. Age, in contrast, did correlate significantly with willingness; organ donor cardholders were older than other participants. These findings conform to those of Perkins (1987), Manninen and Evans (1985) and Amir and Haskell (1997).

Religiosity did not correlate significantly with willingness in the present study. Such finding is not congruent with those of previous studies conducted in the 1970s that correlated willingness with secularity (Cleveland & Johnson, 1970; Simmons et al., 1974). While those studies were conducted among Christians, the present findings are also incongruent with others addressing Jewish participants (Amir & Haskell, 1997). The difference may be explainable by the shift towards flexibility in the religious community's policy towards organ donation and medical technology.

Donors were found to report more positive attitudes towards organ donation, highlighting the differences between donors and non-donors regarding commitment as both behavior and attitudes. It also challenges previous findings claiming that no such differences between donors and non-donors could be observed (Kittur et al., 1991).

No differences were found between donors and non-donors regarding presumed consent. According to this principle, a deceased person's organs may be used unless that person carried a card indicating opposition to doing so or if the family objects. In other words, if there is no opposition by the family or knowledge of the deceased's own wishes, the organs may be used. One explanation for this finding is the assumption that non-donors would be indifferent to such legislation, whereas donors are developing an ambivalent attitude towards it. Indeed, a law of this type may well increase the prevalence of organ donation. Nevertheless, it should be recalled that signing a donor card is a voluntary act whose value would be diminished by the passive donations for which the law provides. Accordingly, despite donors' more positive attitudes towards organ donation than non-donors, the differences may be obscured somewhat by donors' reluctance to endorse a law that downplays their altruism.

Insofar as levels of engagement are concerned, the present study found a significant correlation between acquaintance with other donors and organ donation willingness. The percentage of donors may be on the rise because non-donors are meeting more and more donors and are becoming more aware of the issue. These findings are congruent with those of Nolan and Spanos (1989) and Amir and Haskell (1997), who found that participants without donor cards know fewer cardholders and tend to be less preoccupied with organ donation. Note that this correlation need not be causal: Thinking about the issue and knowing people with donor cards may facilitate willingness, but it is equally possible that a commitment to organ donation and the signing of a donor card in fact facilitated such thinking and led to acquaintance with other cardholders. Further studies should address this issue.

#### 4.2. *Personality variables*

Findings concerning conscious fear of death and authoritarianism, as predictors of organ donation willingness, are congruent with those of previous studies (e.g. Claxton, 1975; Cleveland,

1975; Cleveland & Johnson, 1970; Greenberg et al., 1990; Hessing & Elffers, 1986; Lefcourt & Shepherd, 1995; Robbins, 1990; Simmons et al., 1974).

Less is known about positive body image dimensions and their role in donation willingness. The present study found that donors reported higher levels of positive body image dimensions. It appears possible that people with negative body images would tend to avoid activities entailing high levels of anxiety (Wells & Marwell, 1976), and would be less altruistic and more anxious about body integrity (Jourard & Secord, 1954). It is thus important to consider potential donors' personality predispositions in the effort to increase organ donation or reduce the number not prone to donation (Fisher, 1986).

#### 4.3. *The integrated model*

A discriminant analysis was conducted, enabling assessment of the effect of all variables on organ donation willingness, controlling for correlations among them. We may thus discern the unique effect of each variable and obtain an estimate of whether the proposed model's ability to predict organ donation willingness is indeed significant. Two major results were evident.

First, only conscious fear of death, authoritarianism and emotional attitude towards the body were found to contribute to prediction of willingness. Apparently, in the context of body image, readiness to contribute organs is primarily emotional, so that the other two indicators (overall physical self-perception and gap between real and ideal body image) are linked with organ donation through the emotional attitude towards the body.

Insofar as background variables are concerned, gender was not found to have any significant effect on prediction, conforming to results of previous studies. The same is true for age despite previous findings to the contrary. The earlier results apparently originate in the reciprocal relations between age and personality variables and not in any effect per se.

The second significant finding is that the tendency not to donate organs may be predicted with high probability (about 93%). This finding is of practical significance, as relying on the personal variables characterizing study participants, one may screen for persons with negative emotional attitudes towards their bodies, authoritarianism and conscious fear of death, thereby increasing the percentage of potential donors in the remaining group who eventually sign donor cards.

Furthermore, the results hint at possible methods of encouraging donor willingness. For example, as the model specifies that authoritarianism is a significant discriminating variable, appealing to legitimate authoritarian figures who support organ donation may promote the issue among this population. Some support for this last suggestion may be sought in the current study's observation that religiosity had no significant effect, contrasting with the findings of previous studies. This shift may reflect the manifest support expressed by religious leaders (i.e. legitimate authoritarian figures) and their potential effectiveness. Finally, intervention programs should incorporate carefully developed fear diminution strategies, focusing specifically on the conscious fear of death expressed by non-donors.

The present study results might be interpreted in the limitation of a single culture sampled in the study, calling for replication and comparison in the context of cross-cultural studies (Martinez et al., 2001; Shih et al., 2001; Yeung et al., 2000). Cumulative literature of sociological studies underscores public attitudes toward organ donation in different cultural contexts (Basu, Hazariwala, & Chipman, 1989; Bilgel et al., 1991; Gabel & Lindskoug, 1988; Keiding, Jensen, &

Vilstrup, 1994; Martinez, Martin, & Lopez, 1995; Nudeshima, 1991; Sanner, 1994; Solheim, Brattebo, & Wisborg, 1993). Accordingly, further studies are called for that would include measures of sociological parameters related to the specific cultures and public attitudes. Although the present study's sample was found to be representative of Israeli students, the results may be limited when making inferences about other population groups with different cultures and educational backgrounds. Moreover, university students in general often have less negative disposition to organ donation. Accordingly, selecting groups on a basis of psychosocial factors would be beneficial for further research.

However, the present study showed that people not willing to sign an organ donor transplant commitment have certain characteristics such as elevated fear of death, more negative body image and the innovative finding that non-donors also have more authoritarianism. These findings may be important in the worldwide campaign to encourage more people to commit to organ donation and thereby save precious lives.

*To sum up:* Although there are limitations to the present study, our study's results confirm and clarify the roles played by body image and authoritarianism and reaffirm the notion that organ donors tend to have contact with other organ donors, suggesting that there is a social dimension that might be put to work in increasing organ donation decisions.

It is well known in the existing literature that there are close associations between attitudes regarding organ donation and donor behavior as well as associations between organ donation and personality characteristics such as fear of death and body image. However, an association of the authoritarianism characteristic to organ donation was also found in this study. The application of this relationship should be further explored.

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