ATTITUDES TOWARDS TRANSPLANT PATIENTS WITH ALCOHOLIC LIVER DISEASE: THE INFLUENCE OF PROSOCIAL PERSONALITY AND PATIENT INFORMATION ON TRANSPLANT PRIORITY RATINGS AND ORGAN DONOR WILLINGNESS

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ABSTRACT
One hundred and eighty eight participants (105 females and 83 males) completed batteries of scales that measured organ donation willingness and prosocial personality levels. Participants also read vignettes that described patients in need of liver transplants. Participants rated the patient with a history of alcohol abuse who was no longer drinking as a significantly lower priority for transplant surgery than a patient with a genetic liver condition. This implied that patients with alcoholic liver disease were perceived as less deserving of liver transplants. It was also found that completing the scales and reading vignettes significantly increased levels of organ donation willingness. This supported the theory that encouraging people to think about organ donation and other prosocial behaviours increased their intention to engage in related activities. Prosocial personality levels did not influence the extent of change in organ donation willingness. The control group that did not read a vignette showed a slightly larger increase in willingness compared with either of the groups that read a vignette. This may be because reading about patients aroused mortality anxiety that inhibited prosocial attitudes. This result although not statistically significant, suggested that giving people information about patients is less effective at promoting donation willingness than encouraging them to think about organ donation more generally.

INTRODUCTION
According the World Health Organisation, approximately 100,900 organs were transplanted worldwide in 2008 (World Health organisation, 2010).
This represents less than 10% of the global demand for organs (World health Organisation, 2010). The demand for organs is growing and it continually exceeds supply. It is clear that the shortage of organs available is a serious public health problem.

The majority of people in the EU are in favour of organ donation but many fail to take action to become a donor. Seventy seven percent of Europeans surveyed in 2010 said that they would be happy for their organs to be donated when they died; Fifty three percent of Europeans also said that they would be willing to consent to the donation of organs belonging to close family members (European Commission, 2010). Mostafa (2010) developed a battery to measure overall willingness to donate organs after death. This battery consisted six scales: an organ donation altruistic values scale, an organ donation knowledge scale, a organ donation perceived benefit scale, an organ donation fear and risk scale and an organ donation intention scale.

Many public health campaigns that aim to increase public support for organ donation are designed to increase knowledge about the transplantation system. Feeley, Tamburlin, and Vincent (2008) claimed that giving people information about organ donation and particularly information regarding patients in need of organ transplants increased levels of organ donation willingness and intention. The current study examined whether presenting participants with information about patients resulted in a change in organ donation willingness levels.

It has been proposed people with certain types of personalities and value orientations are more likely to be willing to become organ donors. Penner, Fritsche and Craiger (1995) proposed that some individuals had a prosocial personality profile. They conceptualized prosocial personality as consisting of two distinct factors, other orientated helping and helpfulness. Penner et al. (1995) developed a battery of tests to measure prosocial personality. This battery included reliable scales that measure social responsibility, empathetic concern, moral reasoning and self-reported altruism. This battery of tests reliably predicted prosocial actions across a range of domains. Prosocial personality predicts higher rates of helping behaviours (VanLange, Otten, DeBruin & Joireman, 1997). It has been found that prosocial personality was related to increased willingness to donate organs after death (Blanca, Rando, Frutos, & Lopez-Montiel, 2007). This study investigated the relationship between the organ donor willingness battery Mostafa (2010) and the prosocial personality battery.
(Penner et al., 1995). This study assessed the correlations between elements of prosocial personality and willingness to donate organs after death. This study used Reynolds (1982) short social desirability scale to gauge the influence of impression management on responses to items from each of the batteries. It was deemed important to control for impression management as this study investigated social attitudes and activities.

**Mistrust of organ allocation system**

Research suggested that people also mistrust the organ allocation system. Hyde & White (2010) found that many people fear that if they donate their organs they will be given to someone who the donor deems to be ‘undeserving’ of them. Many people feel that patients who are perceived as being responsible for their illnesses should not have equal access to organs suitable for transplantation (Ubel & Loewenstein, 1996). Rodrigue, Hoffman, Park and Sears (1998) investigated this by presenting participants with vignettes regarding patients who needed a liver transplant. They found that participants assigned the patient with the history of alcohol abuse who was no longer drinking as a lower priority for liver transplant surgery than a patient who was suffering from a genetic liver disease. It is argued that many members of the public feel that lifestyle choices and responsibility for illness should be considered when allocating scarce health care resources. This study used similar methods to investigated people’s organ allocation preferences.

**Alcohol related liver disease and liver transplants**

Alcohol related liver disease (ALD) is a common result of persistent alcohol abuse and liver transplant surgery is often the only effective treatment available to patients in the advanced stages of this disease (Thornton, 2009). Sixty seven percent of all the livers transplanted in Ireland between 1993 and 2005 were given to patients suffering from ALD (St. Vincent's Hospital, Dublin., 2010). Patients with ALD are considered for transplantation if they have stopped drinking for at least six months and are committed to never drinking again (St. Vincent's Hospital, Dublin., 2010). Once patients meet these requirements they are put on the waiting list and allocated a suitable organ once it becomes available like every other patient. A fundamental principle of medical ethics requires healthcare professionals to treat patients on the basis of clinical need.
Medical staff should not allow their opinions of the moral deservingness of a patient to influence their clinical decisions (Thornton, 2009).

It is proposed that many members of the public think that the cause of a patient’s illness should be considered when allocating scarce medical resources. This perception seems to be particularly prevalent in relation to the treatment of alcoholics. The established medical and psychological opinion of alcoholism is that it is a disease that has a variety of biological, psychological and social causes (Thonton, 2009). However, many members of the public do not agree with this view of alcoholism. Brudney (2007) argued that many members of the public view alcoholism as a sign of moral weakness rather than an illness. Brudney (2007) claimed that many members of the public view patients with alcohol related liver disease as responsible for their conditions and want to punish them by not allowing them equal access to liver transplants.

Many people fear that substance abusers who are given transplants will return to their old behaviours and damage their precious new organ (Neuberger, 1999). Several high profile cases have lead to the perception that recidivism is common amongst substance abusers that receive organ transplants (Thornton, 2009). Thornton (2009) claimed that BBC coverage of cases such as George Best, the famous footballer who received a liver transplant and continued to drink heavily negatively affected family’s decisions to consent to the transplantation of organs belonging to deceased relatives. Neuberger (1999) has argued that in argued that the vast majority of former substance abusers who receive organ transplants do not return to substance dependence and so this fear of recidivism is disproportionate.

It would seem that there is a discrepancy between what many members of the public believe to be a fair system to allocate scare medical resources and the practice of the medical establishment. (Tong, Howard, Jan, Cass, Rose & Chadban, 2010) proposed that perceptions of moral deservingness were important for people in terms of allocation decisions. Perception of the fairness of the allocation system may also factor influence individuals willingness to become organ donors (Gamliel & Peer, 2010).
Research Aims
This study aimed to investigate the association between prosocial personality and willingness to donate organs posthumously. This study also investigated participants’ preferences for organ allocation. The study investigated whether patients with a history of alcohol abuse were deemed to be lower priorities for transplant surgery than a patient with a genetic liver disease.

This study also investigated whether presenting information about potential transplant recipients changed scores on scales from the organ donation willingness battery. The study also explored if any change in organ donation willingness was associated with patient history and the participants’ scores on scales from the prosocial personality battery.

Hypothesis 1: It was predicted that there would be a significant correlation between scores on scales from the prosocial personality battery and scores on scales from the organ donation willingness battery.

Hypothesis 2: It was predicted that the patient with a history of alcohol abuse would receive a lower transplant priority rating than the patient who was suffering from a genetic condition.

Hypothesis 3a: It was predicted that reading either vignette would increase organ donation willingness scores.

Hypothesis 3b: It was predicted that reading the vignette 1 (which described the patient with a history alcohol abuse) would result in a smaller increase in willingness ratings than reading the vignette 2 (which described the patient with the genetic condition).

Hypothesis 4: It was predicted that participants with higher levels of prosocial personality would show more less change in willingness scores after reading the vignettes than those with lower levels of prosocial personality.

Method
A mixed factorial design was used. Participants were assigned to one of four groups. Participants were recruited from the general population. A total of one hundred and eighty-eight participants completed the study (One hundred and five females and eighty-three males). The age range was from eighteen to sixty five years old. The mean age was 25.38 years old (SD = 9.04). 48.9% of participants had completed secondary education. 32.5% had also completed third level education and a further 18.6% had also completed a postgraduate degree or diploma. 43.6% of participants
reported having an organ donor card. There were forty-six participants assigned to group one (twenty males and twenty-six females). The mean age of this group was 26.52 years (SD = 11.34). There were forty-four participants assigned to group two (eighteen males and twenty-six females). The mean age of this group was 24.89 years (SD = 8.27). There were fifty-one participants assigned to group three (nineteen males and twenty-six females). The mean age of this group was 23.88 (SD = 6.24). There were forty-seven participants assigned to group four (twenty-six males and twenty-one females). The mean age of this group was 26.36 years old (SD = 11.09).

**Organ donation willingness battery**
An adapted form of the organ donation willingness battery (Mostafa, 2010) was used. This battery consisted of six scales: an organ donation altruistic values scale, an organ donation knowledge scale, a organ donation perceived benefit scale, an organ donation fear and risk scale and an organ donation intention scale. Cronbach’s alpha coefficients for the scales ranged from 0.625-0.872 (Mostafa, 2010).

**Prosocial personality battery**
The prosocial personality battery (Penner et al., 1995) was used. This battery consisted of four scales: a social responsibility scale, an empathy scale, a moral reasoning scale and a self-reported altruism scale. Participants responded to all items on these scales using five point likert scales. The Cronbach’s alpha coefficients for these scales ranged from 0.77-0.85 (Penner, et al., 1995).

**Social desirability scale**
Reynolds (Crowne & Marlowe, 1960; Reynolds, 1982) short form of the Marlowe-Crowne (1960) scale of social desirability was used. The short form that was used in this study had thirteen items and has been found to be a reliable. The cronbach’s alpha coefficient for this scale is 0.76 (Reynolds, 1982).

**Vignettes**
Vignette we presented describing a patient who needed a liver transplant. They were adapted from vignettes designed by Rodrigue, et al. (1998). Vignette one described a patient who had alcoholic liver disease and was
no longer drinking; vignette two described a patient with a genetic condition. They were identical in all other ways.

**Distraction task: Vocabulary exercises:**
SAT vocabulary questions were used as a distraction task. These ten questions were taken from practice SAT exams designed by Dulan (2006). PAWStatistics 18.0 was the computer software used to analyze the data.

**Procedure**
Participants randomly assigned to one of four groups. Participants were then sent a link to the questionnaire. The procedure for each group is outlined below.

*Group 1:* Completed demographic questions, the organ donation willingness battery, the prosocial personality battery and the social desirability scale. Read vignette describing a patient with history of alcohol abuse and rated priority for transplant surgery. They then attempted vocabulary exercises (distraction task) and completed the organ donation willingness battery for a second time.

*Group 2:* Completed demographic questions, the organ donation willingness battery, the prosocial personality battery and the social desirability scale. Read vignette describing a patient with a genetic condition and rated priority for transplant surgery. They then attempted vocabulary exercises (distraction task) and completed the organ donation willingness battery for a second time.

*Group 3:* Completed demographic questions, the organ donation willingness battery, the prosocial personality battery and the social desirability scale. They then attempted vocabulary exercises (distraction task) and completed the organ donation willingness battery for a second time.

*Group 4:* Completed demographic questions, the organ donation willingness battery, the prosocial personality battery and the social desirability scale.

**RESULTS**
The data from each of the scales were normally distributed and met the assumptions required for parametric analysis. Composite scores on each battery were calculated by combining scores on each of the continuant
scales from the battery appropriately. Details of how composite scores for each of the batteries were calculated are outlined below:

Composite organ donation willingness score = Organ donation altruistic values scale score + Organ donation knowledge scale score + organ donation scale score + organ donation perceived benefits scale score - organ donation fears and risks scales score + organ donation intention scale score.

Composite prosocial personality score = social responsibility scale score + empathy scale score + moral reasoning scale score + self-reported altruism scale score.

The median score of composite prosocial personality (median = 40) was used as the cut-off point to distinguish between levels of prosocial personality. Participants who scored forty and above on composite prosocial personality were deemed to have ‘high prosocial personality’ and those with a score below forty were deemed to have ‘low prosocial personality’ for the purposes of further analysis. Table four below illustrates the distribution of participants with high and low prosocial personality within the sample.

Social desirability scores were treated as covariates in the analysis of variance of scores on both batteries. This controlled for the influence of impression management as a confounding variable. Social desirability scores were evenly distributed across the sample.

Several scales from the organ donation willingness battery were significantly correlated with each other and scores on scales from the prosocial personality battery also. Table 1 below shows these correlations.

Table 1 Correlation matrix

<table>
<thead>
<tr>
<th></th>
<th>Composite organ donation willingness</th>
<th>Composite prosocial personality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social desirability</td>
<td>-0.23**</td>
<td>0.13*</td>
</tr>
<tr>
<td>Organ altruistic values</td>
<td>0.50**</td>
<td>0.21**</td>
</tr>
<tr>
<td>Organ donation knowledge</td>
<td>0.13*</td>
<td>-0.51</td>
</tr>
<tr>
<td>Perceived benefits</td>
<td>0.698**</td>
<td>0.41**</td>
</tr>
<tr>
<td>Risks and fears</td>
<td>-0.63**</td>
<td>-0.16*</td>
</tr>
<tr>
<td>Intention</td>
<td>0.37**</td>
<td>0</td>
</tr>
<tr>
<td>Social responsibility</td>
<td>0.66</td>
<td>0.37**</td>
</tr>
<tr>
<td>Empathy</td>
<td>0.14*</td>
<td>0.55**</td>
</tr>
<tr>
<td>Moral reasoning</td>
<td>0.13*</td>
<td>0.71**</td>
</tr>
<tr>
<td>Self reported altruism</td>
<td>-0.2</td>
<td>0.48**</td>
</tr>
<tr>
<td>Composite donation willingness</td>
<td>1</td>
<td>0.301**</td>
</tr>
<tr>
<td>Composite prosocial personality</td>
<td>0.38**</td>
<td>1</td>
</tr>
</tbody>
</table>

**p<0.01. *p<0.05.
The priority ratings assigned to the patients described in the vignettes is illustrated below. The figure shows that the patient with the genetic patient was given a higher priority rating.

![Priority ratings given](image1.png)

**Figure 1:** Priority ratings given to patients described in vignettes

An independent group t-test showed that there was a significant difference between the priority rating given to the patient in the genetic condition than the alcohol condition \( t(88) = -3.182, p < 0.05 \).

Composite scores on the organ donation willingness battery increased across the trials for every group, figure 2 below illustrates this trend.

![Composite willingness scores across groups and time](image2.png)

**Figure 2.** Composite scores on organ donation willingness battery.
A mixed ANCOVA was used to analysis the change these scores. The between subject factors were the scores (time one and time two). The between subjects factors were group and high/low prosocial personality. Social desirability was the covariate. The ANCOVA revealed that the main effect of change in scores was significant $F(1,108)= 20.53, p<0.01$, $\eta^2= 0.16$

A one way ANOVA revealed that there was a significant difference between composite scores at time two of all groups and composite scores for group four, $F(3,2)= 159.74, p<0.01$

**DISCUSSION**

Participants rated a patient with a history of alcoholic liver disease who was no longer drinking as a significantly lower priority for liver transplant surgery than a patient who had a genetic liver disease. It was observed that organ donation willingness increased as a result of completing the two batteries and reading the vignettes. Composite organ donation willingness increased significantly over time across all groups. The analysis revealed that there were no significant interactions between changes in scores and prosocial personality levels.

The study found that composite organ donation willingness was positively correlated with several constructs from the prosocial personality battery. This supported the argument that high prosocial personality levels predict higher organ donation willingness levels (Blanca, et al., 2007).

The hypothesis that the patient with a history of alcohol abuse would receive a lower priority rating for transplantation was supported. These findings were similar those found by Rodrigue, et al., (1998). It would seem from these findings that some people do believe that alcoholics are less deserving of liver transplants than those with other types of conditions. Further research is needed to investigate perceptions that patients with histories of substance abuse should be lower priorities for transplant surgery. It would also be interesting to investigate possible differences between the opinions of medical staff and the general public on the subject of organ allocation. These findings would suggest that perhaps more consultation is needed between the health service and the general public on the subject of organ allocation as public preferences do not seem to match the current protocol for organ allocation.
It is clear that completing the first part of the study did facilitate an increase in organ donor willingness in general. Comparisons between scores from the organ donation willingness battery across time reveal that there were consistently significant differences between the willingness scores between trials. This suggests that doing the study itself increases organ donation willingness. This finding is consistent with other studies that have found that encouraging people to think about prosocial activities increases their intention engage in these types of behaviour in the future (Einolf, 2008).

The presence of the second control group (group 4) allowed comparisons to be made to assess whether the first part of the study influenced the result. This type of ‘Solomon four group design’ may increase the internal of the study.

It seems that reading either vignette resulted in a similar sized increase in organ donation willingness levels. This suggests that reading the vignette describing the patient with a history of alcohol abuse does not seem to inhibit organ donation willingness significantly. This finding is interesting in the light of the previously discussed findings that patients with a history of alcohol abuse receive lower priority ratings. It would seem that although participants would like the patient with alcoholic liver disease to be a lower priority for transplant surgery, reading about his situation promoted organ donation willingness to the same extent as reading about a patient with a genetic liver condition. This may imply that perceptions of the fairness of the allocation system are separate from the sympathy that participants feel for the patients described in the vignettes. Future research could investigate this further.

It is interesting to note that the study also found that the control group that did not read a vignette increased their donation willingness slightly more than participants who read either vignette. This finding proposes that completing the organ donation willingness and prosocial personality batteries alone promoted a slightly greater increase in organ donation willingness levels compared with completing batteries and reading the vignettes also.

This trend may be explained in terms of terror management theory as outlined in Hirschberger, Ein-Dor and Almakias, (2008). Terror management theory proposes that people develop psychological mechanisms to defend themselves against threatening thoughts of death.

When people become aware of their own mortality they become
defensive and retreat from prosocial activity; they also show higher levels of disgust and revulsion (Hirschberger, et al., 2008). Hirschberger, et al. (2008) found that participants who were primed with thoughts of death were less likely to register as organ donors. A similar effect may have occurred in this study. It is possible that personal mortality became more salient for participants who read a vignette because they could relate to the patient in the scenario. The reality of serious illness may have been more acute for participants in these groups compared with the control group that did not read a vignette. This increased mortality anxiety may have interfered with the increase in willingness ratings for groups one and two. However, it must be noted this difference between the groups was not statistically significant and future research should investigate whether it is replicated to a larger extent in further studies.

There was no significant interaction between changes in willingness and levels of prosocial personality. Therefore, the hypothesis that individuals with high prosocial personality would be more consistent in their organ donation willingness ratings across time was not supported.

This study had several limitations. Although the research sought to recruit a sample from a general population it must be noted that the majority of participants were university students or graduates. The sample used for this research does not encompass a wide variety of socioeconomic levels and therefore it is not truly representative of a general population. It must be noted that 49.8% of participants doing this study said that they had an organ donor card. This sample may have been skewed towards increased levels of organ donation willingness to begin with. There was also a significant gender imbalance in the sample. This may have skewed the results. Women have been found to express higher levels of organ donation willingness overall (Wakefield, Watts, Homewood, Meiser, & Siminoff, 2010). Future research should be conducted to investigate the influence of prosocial personality and patient information with a more varied sample.

The second limitation is that using composite scores for both of the batteries may not have been an appropriate way to analysis the data. It was done in order to conceptualize organ donation willingness and prosocial personality as complete concepts. However, it should be remembered that the scales on each of the batteries represent distinct constructs in relation to organ donation willingness and prosocial personality and so calculating composite scores for each of the batteries
may have resulted in a lack of understand of the nuisances of the concepts. It may have been more useful to break prosocial personality into its two factors: other orientated empathy and helpfulness and perform analysis on these two factors separately.

The third limitation was the manner that the repeated measures element of the study was conducted. Participants completed the two questionnaires within minutes of each other. The distraction task may not have been very effective and so the test- retest reliability of this study may have been compromised by this design.

This study found that there is an association between prosocial personality and organ donation willingness. This study suggested that people who are orientated to think more about others and engage in more helping behaviours in general are more likely to be willing to be organ donors after their deaths. It may be beneficial to do further research into ways of encouraging people with low levels of prosocial personality to donate their organs. Public health campaign could emphasize the benefits for donor and their families (such helping families cope with bereavement) as well as the benefits of organ transplants for transplant recipients. This may attract people with more individualistic personalities to the idea of organ donation. This proposal could be investigated further in future research.

The study also found that people gave a patient with a history alcohol abuse who was no longer drinking a significantly lower priority rating for transplant surgery than a patient with a genetic liver condition. This may reflect the stigma and prejudice that surrounds alcoholism in society. This study proposes that further consultation is needed between members of the public and the medical establishment regarding the allocation of scarce medical resources. It could be argued that members of the public need more information about how these kinds of treatment allocation decisions are made by medical professionals. It is also important that health services are aware of concerns that the public may have so that people do not become alienated from the transplant system.

This study demonstrated that encouraging people to think about organ donation and prosocial behaviours in general lead to an increase in organ donation willingness. This suggests that public health campaigns that encourage people to think and talk about organ donation can be effective in increasing the likelihood that people will register to donate and consent to the donation of organs belonging to their deceased relatives.
Interestingly, the study also found that asking people about their attitudes towards organ donation and other prosocial behaviours alone was slightly more effective at increasing organ donation willingness than asking the same questions and also presenting information about potential organ transplant recipients. This might suggest that people are more comfortable thinking about organ donation in an abstract sense. It is argued that the mortality salience that may result from information about transplant recipients interferes with people’s willingness to donate organs. Public health campaigns to encourage organ donation may be more effective if they promote organ donation as an altruistic act that benefits society generally rather than providing information about transplant patients. Further research is of course needed to investigate effective strategies for encouraging organ donation.

REFERENCES


