

Running head: AFFECTIVE ATTITUDES AND ORGAN DONATION

Do Affective Attitudes Predict Organ Donor Registration? A Prospective Study

Lee Shepherd and Ronan E. O'Carroll

Department of Psychology, University of Stirling

Word count: 2,044

Corresponding author:

Lee Shepherd, Department of Psychology, School of Natural Sciences, University of Stirling,
Stirling, FK9 4LA

Email: Lee.Shepherd@stir.ac.uk

Abstract

This study assessed whether people's affective attitudes predicted organ donor registration at a later time. People who were not registered as an organ donor prior to completing the study (N = 150) first rated their affective attitudes towards organ donation. We then measured whether they clicked on a hyperlink to register as an organ donor. Believing that the body should be kept whole for burial (bodily integrity) was the only affective attitude to predict this organ donation behaviour. Future campaigns should target this concern in order to increase organ donor registration and the availability of donor organs.

Keywords

Affect, beliefs, emotions, public health psychology, regression.

Introduction

In the US there are currently over 110,000 people waiting for a solid organ transplant and 18 people die per day before they receive this transplant (US Department of Health and Human Services, 2013). Similarly, in the UK there are over 10,000 people waiting for an organ transplant and 3 people per day die before they receive an organ (NHS Blood and Transplant, 2013). Moreover, the number of people awaiting a solid organ transplant is increasing each year (Organ Procurement and Transplantation Network and Scientific Registry of Transplant Recipients, 2011; NHS Blood and Transplant, 2012). Therefore, there is an urgent need to identify the factors that promote and prevent people from consenting for their organ to be transplanted in order to reduce the number of people on transplant waiting lists and save lives.

Non-cognitive emotions and affective attitudes are likely to influence whether a person decides to register as a posthumous organ donor (Iriving et al., 2012; Morgan et al., 2008; O'Carroll et al., 2011; Wakefield et al., 2010). Non-cognitive emotions and affective attitudes can be defined as beliefs or concerns that are associated with affect or emotions (O'Carroll et al., 2011). These may include disgust, fear and anxiety, and positive affect (Morgan et al., 2008). With regard to organ donation, researchers (Morgan et al., 2008; O'Carroll et al., 2011) suggest that these include the anxiety associated with removing organs from the body (bodily integrity), fearing that doctors may let seriously ill patients who are organ donors die in order to harvest their organs (medical mistrust), feeling disgust towards the idea of organ donation (the 'ick factor'), fearing that registering may result in one dying prematurely because they have made plans for their own death (the 'jinx factor'), and the belief that organ donation has positive consequences (perceived benefit). Research in the US (Morgan et al., 2008) and the UK (O'Carroll et al., 2011) has found that people who are not registered organ donors are more

likely than registered donors to feel the negative emotions and believe the negative affective attitudes, and are less likely to endorse the positive consequences of organ donation. Moreover, Morgan et al. (2008) found that the non-cognitive affective attitudes were stronger predictors of organ donor registration than the traditional cognitive factors outlined by the theory of planned behavior (Ajzen, 1991).

This research suggests that non-cognitive affective attitudes are likely to influence a person's decision to register as a posthumous organ donor. However, these studies used a cross-sectional design, preventing researchers from ruling out reverse causation (O'Carroll et al., 2012). Although the majority of theories have focused on the role of attitudes in predicting behaviour (e.g., theory of planned behavior, Ajzen, 1991), people may also use their past behaviour to infer their attitudes about an action (Albarracin & Wyer, 2000; Cialdini, 2001; Festinger, 1957; Fishbein & Ajzen, 1975). According to these theorists, people who were not registered donors may be more likely than registered donors to endorse the negative emotions and affective attitudes because they infer from their actions (i.e., not being a donor) that they have negative attitudes towards donation. Therefore, further studies are needed to determine the direction of the relationship between the non-cognitive affective attitudes and behaviour. The aim of the present study was to improve upon previous research by using a prospective design to determine whether the non-cognitive affective attitudes predict subsequent organ donor registration. Based on previous research (Morgan et al., 2008; O'Carroll et al., 2011), we hypothesized that the five non-cognitive affective attitudes (bodily integrity, medical mistrust, the ick and jinx factors, and perceived benefits) would predict whether the participant clicked on a hyperlink to register as a posthumous organ donor.

Method

Participants and design

A total of 150 undergraduate students (36 men and 114 women) from a private university in a semi-rural location took part in this online study in exchange for course credit. All participants were not registered as an organ donor prior to completing the study. Participants' ages ranged from 17 to 54 years ($M = 20.45$, $SD = 5.81$). This study used a prospective correlational design. The predictor variables were bodily integrity, medical mistrust, the ick and jinx factors, and perceived benefit. The dependent variable was whether or not the participant clicked on a hyperlink to register as an organ donor.

Materials and procedure

In this online study participants first completed a modified version of the attitudes towards organ donation questionnaire (Morgan et al., 2008; O'Carroll et al., 2011). Bodily integrity was measured with two items (e.g., 'The body should be kept whole for burial', $\alpha = .73$). Medical mistrust was measured using four items (e.g., 'If I sign an organ donor card, doctors might not try so hard to save my life', $\alpha = .74$). The 'ick factor' was measured using three items (e.g., 'The idea of organ donation is somewhat disgusting', $\alpha = .79$). Jinx was measured with three items (e.g., 'The surest way to bring about my own death is to make plans for it like signing an organ donor card', $\alpha = .59$). Perceived benefit was measured using four items (e.g., 'Organ donation allows something positive to come out of a person's death' $\alpha = .67$)¹. On the webpage following the questionnaire participants were told 'If you would like to register as an organ donor please *click here* to be redirected to the UK Organ Transplant website. It only takes a few minutes to register as an organ donor.' We then measured whether or not the participants clicked on this hyperlink to register as an organ donor (yes versus no).

Statistical Analysis

A logarithmic transformation was performed on the bodily integrity, medical mistrust, and ick subscales to correct for a moderate positive skew. An inverse transformation was performed on the jinx subscale to correct for a substantial positive skew. A square-root transformation was performed on the perceived benefit subscale to correct for a moderate negative skew. A binary logistic regression was conducted to determine which affective attitudes *uniquely* predicted organ donor registration behaviour. In this analysis the predictor variables were the five affective attitudes.

Results

Although there was a significant relationship between the non-cognitive affective attitudes (see Table 1), the magnitude of these correlations suggested that these were separate constructs, as suggested by previous research (O'Carroll et al., 2011). It was more likely that participants did not click on the hyperlink ($N = 136, 90.67\%$) than clicked on this link ($N = 14, 9.33\%$; $\chi^2(1) = 99.23, p < .001$). The point-biserial correlations demonstrated that bodily integrity was the only affective attitude to predict behaviour (see Table 1). In the binary logistic regression the affective attitudes predicted between 5% (Cox & Snell, 1989) and 11% (Nagelkerke, 1991) of the variance in people's organ donor registration behaviour ($\chi^2(5) = 7.60, p = .180$). In this analysis bodily integrity significantly predicted organ donor behaviour ($b = -3.46, p = .048$, odds ratio (OR) = 0.03, 95% confidence intervals (CI) = 0.001, 0.97). Interestingly, in this analysis organ donation behaviour was not predicted by medical mistrust ($b = -1.06, p = .500$, OR = 0.35, 95% CI = 0.02, 7.58), the ick factor ($b = -0.28, p = .843$, OR = 0.76, 95% CI = 0.05, 11.92), jinx ($b = 0.57, p = .669$, OR = 1.77, 95% CI = 0.13, 24.28), or perceived benefit ($b = 0.16, p = .872$, OR = 1.17, 95% CI = 0.18, 7.70).² Therefore, bodily integrity concerns reduced the likelihood of

people registering as an organ donor, while the other affective attitudes did not predict this action.

Discussion

This research used a prospective design to determine whether non-cognitive affective attitudes predict organ donor registration at a later point in time. Bodily integrity concerns reduced the likelihood that people would click on a hyperlink to register as a posthumous organ donor. Therefore, unease about post-mortem harvesting of one's organs impacts on the decision as to whether or not one should register as a posthumous organ donor. Although this finding is promising, it does not allow researchers to infer a causal relationship between bodily integrity and organ donor registration. Further experimental research is required to determine whether such affective attitudes have a causal relationship on the decision as to whether or not one registers as a posthumous organ donor.

Although religion is often regarded as a major barrier to organ donation, research has found that only 7% of people were deterred by religious factors, while 25% were deterred by bodily integrity concerns (Council of Europe, 2010). Based on this research and the present study we argue that organ donor campaigns should target bodily integrity concerns. Research has found that simply asking people whether they would accept an organ in order to save their own life decreases their bodily integrity concerns, which, in turn, increases their willingness to register as a posthumous organ donor (Shepherd et al., 2013). Moreover, presenting a brief video that addresses bodily integrity concerns increases organ donation consent rates (Thornton et al., 2012). The present study suggests that such interventions may be the key to increasing the number of registered posthumous organ donors, thereby alleviating the shortage of donor organs.

We also found that the other affective attitudes did not predict registration. Previous research has found that although bodily integrity consistently predicts organ donation, this is not always true for the other affective attitudes (Morgan et al., 2008; O'Carroll et al., 2011). O'Carroll et al. (2011, Experiment 2) found that jinx, medical mistrust and perceived benefit did not differ between registered and non-registered organ donors. Similarly, Morgan et al. (2008) found that jinx and medical mistrust did not uniquely predict organ donation. Because bodily integrity predicted donation in the present study and previous research, we concur with O'Carroll et al. (2011) in suggesting that this affective attitude may be one of the strongest and most robust predictors of registration. It should be noted that recently Cohen and Hoffner (2013) found that self-benefits (e.g., feeling respected) are a stronger predictor of organ donor intentions than other-benefits (e.g., benefiting humanity). Future research is needed to determine whether perceived benefit is a more robust predictor of registration when a distinction is made between self- and other-benefits.

The behavioural measure was unobtrusive and not self-reported, allowing for the objective assessment of organ donation behaviour. However, clicking on the hyperlink did not necessarily mean that the participant registered as a donor. We were unable to determine whether the participant completed the short organ donor registration form. Therefore, we can only conclude that the participants undertook further action to register as an organ donor. A further limitation is that the participants were undergraduate students. Given the support for organ donation in young and highly educated groups (Shepherd & O'Carroll, in press), we do not know if these findings are applicable to the general public. However, research with members of the general public found that people who were not registered organ donors were more concerned about bodily integrity than registered organ donors (O'Carroll et al., 2011, Study 2). This

suggests that the results may be generalizable. Therefore, despite these limitations this study provides strong empirical support that bodily integrity concerns are a major barrier to organ donor registration.

Conflicting Interests

No conflicting interests

Acknowledgements

This work was supported by a grant from the Chief Scientist Office (Scottish Government; CZH/4/686). We would like to thank two anonymous reviewers for their suggestions.

References

- Albarracin D and Wyer RS (2000) The cognitive impact of past behavior: Influences on beliefs, attitudes, and future behavioral decisions. *Journal of Personality and Social Psychology* 79(1): 5-22.
- Ajzen I (1991) The theory of planned behavior. *Organizational Behavior and Human Decision Processes* 50(2): 179-211.
- Cialdini RB (2001) *Influence: Science and practice*. Needham Heights, MA: Allyn and Bacon.
- Cohen EL and Hoffber C (2013) Gifts of giving: The role of empathy and perceived benefits to others and self in young adults' decisions to become organ donors. *Journal of Health Psychology* 18(1): 128-138.
- Cox DR and Snell DJ (1989) *The analysis of binary data* (2nd ed.). London: Chapman & Hall.
- Festinger L (1957) *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Fishbein M and Ajzen I (1975) *Belief, attitude, intention and behavior. An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Irving MJ, Tong A, Jan S, et al. (2012) Factors that influence the decision to be an organ donor: A systematic review of the qualitative literature. *Nephrology Dialysis Transplantation* 27(6): 2526-2533.
- Morgan SE, Stephenson MT, Harrison TR, Afifi WA and Long, SD (2008) Facts versus 'feelings': How rational is the decision to become an organ donor? *Journal of Health Psychology* 13(6): 644-658.
- Nagelkerke NJD (1991) A note on a general definition of the coefficient of determination. *Biometrika* 78(3): 691-692.

NHS Blood and Transplant (2012) Transplant activity in the UK: Activity report 2010/2011.

Available at:

www.organdonation.nhs.uk/statistics/transplant_activity_report/current_activity_reports/ukt/activity_report_2011_12.pdf

NHS Blood and Transplant (2013) Organ donation. Available at: www.organdonation.nhs.uk/ (accessed 20 February 2013).

O'Carroll RE, Ferguson E, Hayes PC and Shepherd L (2012) Increasing organ donation via anticipated regret (INORDAR): Protocol for a randomised controlled trial. *BMC Public Health* 12: 169.

O'Carroll RE, Foster C, McGeechan G, Sandford K and Ferguson E (2011) The "Ick" factor, anticipated regret, and willingness to become an organ donor. *Health Psychology* 30(2): 236-245.

Organ Procurement and Transplantation Network and Scientific Registry of Transplant Recipients (2011) OPTN/SRTR 2010 Annual Data Report. Available at: www.srtr.org/annual_reports/2010/pdf/2010_SRTR_ADR.pdf

Shepherd L, Arnott K and O'Carroll RE (2013) '*An Eye for an Eye*': *Voluntary Reciprocal Altruism and Organ Donation*. Manuscript in preparation.

Shepherd L and O'Carroll RE (in press) Awareness of legislation moderates the effect of opt-out consent on organ donation intentions. *Transplantation*.

Thornton JD, Alejandro-Rodriguez M, Leon JB, et al. (2012) Effect of an iPod video intervention on consent to donate organs: A randomized trial. *Annals of Internal Medicine* 156(7): 483-490.

US Department of Health and Human Services (2013) Donate the gift of life. Available at:

<http://www.organdonor.gov/index.html> (accessed 20 February 2013).

Wakefield CE, Watts KJ, Homewood J, Meiser B and Siminoff LA (2010) Attitudes towards

organ donation and donor behavior: A review of the international literature. *Progress in*

Transplantation 20(4): 380-391.

Footnotes

¹ Removing items did not improve the reliability of the jinx and perceived benefit subscales. Therefore, all the items were retained.

² Including age and gender into the binary logistic regression did not alter the results. In this analysis neither age nor gender predicted behaviour.