

An Alternative Framing of Organ Donation Registration: The Collective Donor Behavioral Model

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Abstract

Notwithstanding the prevalent use of donor registration prediction models underpinned by the theory of planned behaviour (TPB), registration behavior continues to remain low. A collective donor behavior (CDB) model underpinned by social exchange theory is introduced and its predictive ability is tested against a baseline TPB model using an online survey of adults ($n = 1055$). Individuals who indicated they were not registered donors were contacted three months later to track their registration status. The CDB model was found to explain 45% of variance in registration intentions which was comparable in performance to TPB. Normative commitment was found to be strongly associated with registration intentions, and both institutional trust and trust in others fostered this commitment. The CDB model provides different insights on how to increase donor registration intentions. Namely, interventions need to facilitate individual positive experiences with institutions such as hospitals and strengthen social inclusion perceptions.

Introduction

Globally, there is a disparity between needed and available organs. In the US, an estimated 20 people die each day while awaiting a transplant (HRSA, 2019) despite increases in the number of (deceased) donors and organs authorized for recovery (Israni et al., 2019). With many nations using “opt in” registration systems that require family consent, much of the eligible population are unregistered despite widespread supportive attitudes (O’Carroll et al., 2016; Siegel et al., 2014). For example, although 95% of Americans are in favor of being a donor, only 58% are

registered (Donate Life America, 2019). These low rates are surprising, given continued health promotions (Siegel et al., 2008), decades of research on registration behavior, and the use of targeted interventions (Jones et al., 2017).

The Theory of Planned Behaviour (TPB) (Fishbein & Ajzen, 2010) is frequently used to explain donation behavior (see Farsides, 2010; Hyde et al., 2013; Bresnahan et al., 2007; Rocheleau, 2013). It suggests that registrations are driven by positive attitudes towards organ donation (based on its apparent benefits and costs), perceiving behavioral control (the perceived ease of registering) and subjective norms (the perceived pressure from others to register). The TPB underpins many of the predictive models of organ donor registration behavior, for example, Horton and Horton's (1991) Organ Donor Model, The Organ Donor Willingness Model (Kopfman & Smith, 1996), and The Organ Donation Model (Morgan & Miller, 2002). A meta-analysis of 24 publications using variables underpinned by the TPB concluded that registered organ donors differed from non-donors by their level of positive attitude, altruism, social influence, communication about organ donation with their families, and lower fear regarding organ donation upon death (Nijkamp et al., 2008).

Although the TPB focuses on the individuals' beliefs and the opinions of others, it does not consider the individuals' embeddedness within society, nor the institutions with which they interact (Levi, 1991; Rothstein, 2000, 2001). These issues are important in the context of public goods such as donated organs, as contributions represent a social contract between individuals, governments, and other society members (Levi, 1991). When contemplating whether to contribute to public goods, donors face two social dilemmas (Rothstein, 2001). These include the

need to trust institutions charged with delivering public goods, and the need to trust other society members who may consume but not contribute to public goods.

Drawing on Levi's and Rothstein's accounts of participation in public goods and social exchange theory's (Blau, 1964) explanation of prosocial behavior (Foddy & Dawes, 2008; Lawler et al., 2001), we develop a model of Collective Donor Behavior (CDB). Social exchange theory sees deceased donation as an interdependent behavior (Etzioni, 2003; Schweda & Schick Tanz, 2009; Shaw et al., 2012), with organ donor registration part of a social system (Etzioni, 2003) underpinned by reciprocal obligations (Siegal & Bonnie, 2006) or generalised exchanges among society members. Generalised exchanges involve diffuse obligations between society members, as opposed to tit-for-tat transactions (Blau, 1964). Less about individual transactions, generalised exchanges are "systems of social solidarity" (Giesler, 2006); the glue that holds societies together.

The CDB model acknowledges the institutional and social context of organ donation and the interdependence between the donation and transplant systems (Healy, 2004). The CDB model posits that perceptions of justice and social inclusion respectively are key antecedents of trust in institutions and other people. These objects of trust are mechanisms by which individuals' obligation is deepened (operationalized as normative commitment) and their attachment to the (organ donation) cause is strengthened (operationalized as affective commitment). Both types of commitment increase an individual's propensity to register for organ donation.

The aim of this study is to compare the ability of the CDB and TPB models in predicting donor registration behavior. This is important as the CDB model offers a different route to donor

registration behavior. Namely, the CDB model focuses on developing commitment, which influences behavior independently of other motives and target-relevant attitudes (Meyer & Herscovitch, 2001). Therefore, we make a number of contributions to theory and practice. First, we extend the use of social exchange theory to explain organ registration behavior. This differs from traditional TPB approaches which focus on developing favorable attitudes towards organ donation. Instead, the CDB model implies a focus on developing obligation, and it illustrates how to achieve collective cooperation.

The Collective Donor Behavior (CDB) Framework

Trust is one of the most significant concepts in theories of both collective behavior and social exchange (Molm et al., 2000). Trust in the donation process has been identified as a critical factor in securing an adequate supply of organs (Brown, 2018). Trust is future-oriented and is defined as “confident, positive expectations about the words, actions, and decisions of another in situations entailing risk” (Colquitt et al., 2012, p.1). While trust in social exchange and social dilemma theories generally relate to an assessment of the behavior of others (Yamagishi & Cook, 1993), the CDB model includes two objects of trust: trust in others and institutional trust. Trust in others relates to trust between group members, which facilitates cooperation (Brewer, 2008). Foddy and Dawes (2008) describe this kind of trust as “social assurance” (p.57). Trust in others, also referred to as depersonalised trust (Brewer, 2008), is founded on two assumptions: 1) perceptions that one is part of a group and that others recognize and accept one as a group member, and 2) that group members will behave fairly towards other group members. In the CDB model, trust in others captures the trust between society members in relation to organ

donation and transplantation, that is, the belief that other society members are also willing to register as donors and not free ride the system.

Institutional trust relates to perceptions regarding the dependability of the institutions underpinning the donation and transplant systems. Economic and social exchanges are embedded in cultural and institutional structures that provide constraints on and incentives for behavior (Granovetter, 1985). The provision of public goods is almost inevitably mediated through institutions (Mau, 2004), and studies consistently indicate that institutional mistrust (e.g., hospitals) is a barrier to donation (Almassi, 2014; Siminoff & Arnold, 1999). This institutional mistrust includes fears that physicians may withhold or prematurely withdraw life-saving treatment for registered donors (Brown, 2018; Goldberg et al., 2013), that individuals will be subjected to invasive, non-consensual interventions for organ optimisation (Brown, 2018), and perceptions that some groups, such as the rich and famous, get preferential access to organs (Boulware et al., 2006).

Trust in organ donation and transplant systems is influenced by perceptions of the health system overall (Siminoff et al., 2006). This may be due to the difficulty in judging the trustworthiness of specific organ donation and transplant programs, which have been characterized as offering “little openness and transparency” (Brown, 2018, p.145).

Hypotheses

The conceptual framework of the CDB model with its hypothesized relationships is shown in Figure 1.

Insert Figure 1 about here

Justice perceptions and institutional trust. Fairness perceptions have been shown to influence institutional trust and collective behaviors in relationships in the workplace (Colquitt et al., 2012; Konovsky & Pugh, 1994), community policing (Bradford, 2014), and interactions with government bodies (McComas et al., 2007). Fairness perceptions with respect to the CDB model relate to three forms of justice: (1) distributive, the perceived fairness of decision outcomes, (2) procedural, the perceived fairness of decision-making processes, and (3) interactional, the perceived fairness of the one-to-one interpersonal treatment received as procedures are enacted (Colquitt et al., 2012).

First, distributive justice is reflected by perceptions of equity in decision outcomes. Perceptions of inequity in decisions lead to doubt about an institution's competence, reliability and professionalism, all components of trust (Colquitt et al., 2012). Second, individuals pay close attention to those aspects of procedures that enable them to evaluate decision-making processes, as this facilitates attributions regarding outcomes and whether those outcomes are deserved (Blader & Tyler, 2003). As such, procedural justice is fostered when authorities provide the individual with the opportunity to input into key decisions, and when authorities utilize procedures that are perceived as "consistent, accurate, unbiased, correctable, representative of the group concerns, and ethical" (Colquitt et al., 2012, p. 3). Third, interpersonal justice is fostered when authorities treat individuals with respect and dignity (Colquitt et al., 2012). When interpersonal justice is perceived to be low this reflects a lack of professionalism, signalling low trust of institutions (Blader & Tyler, 2003; Colquitt et al., 2012).

Few individuals are likely to have prior interactions with organ donation and transplantation institutions; however, most adults have had some interaction with hospitals. As there is a halo effect between health institutions and organ donation and transplantation institutions (Irving et al., 2012), perceptions of fairness in prior interactions in hospitals are expected to translate to organ donation and transplant system institutional trust. Thus:

Hypothesis 1 (H1): Distributive (a), procedural (b) and interactional (c) justice perceptions within the hospital system are positively associated with institutional trust in the organ donation and transplant system.

Social inclusion and trust in others. Inclusion is identified as a primary human need (Sheldon & Gunz, 2009), and inclusion in a community or group facilitates a shared interest in behaving collectively, as group members can be trusted (Yamagishi & Kiyonari, 2000). Inclusion in a group increases cooperation between members (Hillebrandt et al., 2011) and willingness to participate in prosocial behaviors (Twenge et al., 2007). Conversely, social exclusion negatively impacts attitudes towards deceased donation; those who feel alienated from society are less inclined to donate (Morgan, Mayblin & Jones, 2008).

In the case of donor registration, as with many public goods, the group extends to the society in which organ donation and transplantation systems operate; such that:

Hypothesis 2 (H2): Social inclusion is positively associated with trust in others.

Evidence suggests that institutional trust can facilitate trust between society members by encouraging fair behavior in communities (Levi, 1998; Rothstein, 2000). Institutions help set the tone of a society; where institutions are perceived to be corrupt and ineffective, trust between

society members is likely to be low. Conversely, where institutions are perceived as fair and just, people have some basis to trust others (Rothstein, 2000). Hence:

Hypothesis 3 (H3): Institutional trust is positively associated with trust in others.

Trust and commitment. Commitment is a psychological attachment to a goal (Meyer et al., 2002) and in social relationships, demonstrations of trust are shown to build solidarity and commitment (Molm, 2010). Meyer & Allen (1991) identify three types of commitment within exchange relationships—*affective*, *normative*, and *continuance*. With respect to prosocial behavior these three forms of commitment can be understood as (1) wanting to act, (2) feeling obliged to act, and (3) needing to act, respectively.

In the case of registering as a donor, *affective* commitment may manifest itself in feelings of emotional attachment (Meyer & Herscovitch, 2001) to the cause of organ donation. For example, donation promotion campaigns that utilise narratives of real organ donors and transplant recipients, attempt to encourage registration by fostering *affective* commitment (Kopfman et al., 2009). *Normative* commitment is described as “the mind-set of obligation” (Meyer & Herscovitch 2001, p.317) and promotional appeals tapping into this commonly express deceased donation as a moral obligation (Savulescu, 2003). For example, Etzioni (2003) argues that the preferences of non-donors can be changed through “moral persuasion, community appreciation of good conduct, and gentle chiding of those who do not do what is considered right” (p.5). *Continuance* commitment which is characterized by a cost-avoidance mindset (Meyer & Herscovitch, 2001) may be evident in donation and transplant systems such as in Israel and Singapore that employ the threat of sanctions to encourage donation (Burkell, Chandler & Shemie, 2013). However, *continuance* commitment is unlikely to be an outcome of either trust in

others or institutional trust, as it is founded on utilitarian assessments of the costs and benefits of participating versus not participating. Equally, as a one-off behavior, it is unlikely that registered donors will withdraw their consent to donate. Consequently, as continuance commitment is not relevant in this context, it is omitted. This is supported by Meyer and Herscovitch (2001) who propose that continuance commitment either correlates negatively or does not correlate with discretionary behavior.

Within the prosocial literature, trust is shown to be a key antecedent to commitment to donating (Sargeant & Lee, 2004). Institutional trust fosters normative commitment by creating a relationship of mutual obligation or a norm of reciprocity (Konovsky & Pugh, 1994). Relatedly, institutional trust fosters affective commitment by congruent values between the individual and the institution (Liou & Nyhan, 1994). Thus:

Hypothesis 4a (H4a): Institutional trust is positively associated with normative commitment to organ donation registration.

Hypothesis 4b (H4b): Institutional trust is positively associated with affective commitment to organ donation registration.

Similar to institutional trust, trust in others promotes normative commitment because it reduces uncertainty about others' reciprocation while fostering a sense of obligation (Konovsky & Pugh, 1994). When there is trust in others, individuals are more likely to discharge their obligation to register, in part because they feel such efforts will be reciprocated down the line and thus obligations will balance out in the long term (Colquitt et al., 2012). Further, trust in others facilitates affective commitment to the organ donation cause because it encourages

affective bonds within the group and commitments to further the group's interests (Lawler et al., 2001). Thus:

Hypothesis 5a (H5a): Trust in others is positively associated with normative commitment to organ donation registration.

Hypothesis 5b (H5b): Trust in others is positively associated with affective commitment to organ donation registration.

Commitment and donor registration intentions. Commitment is shown to be reliable predictor of discretionary behaviors (Colquitt et al., 2012) such as prosocial acts (Meyer & Allen, 1991; Sargeant & Lee, 2004), including blood donation (Bednall et al., 2013). Normative commitment and its felt obligation, and affective commitment and its felt passion, are mindset forces that bind the individual to action that benefits the collective (Meyer & Herscovitch, 2001). Hence:

Hypothesis 6a (H6a): Normative commitment to organ donation registration is positively associated with organ donor registration intentions.

Hypothesis 6b (H6b): Affective commitment to organ donation registration is positively associated with organ donor registration intentions.

Method

Participants

Ethics approval for the study was obtained by The University of Melbourne ID1545343.1.

Through a market research company, a sample of 1055 adults over 18 was recruited, using randomized sampling representative of the Australian adult population (regarding gender, age

and location) using a voluntary online panel. The typical respondent was male (55%), 35-44 years (19.6%) with a bachelor degree (23.8%) of no religion (40%). Following the removal of cases where respondents uniformly selected the “neutral” scale or indicated they were unsure of their registration status, a final sample $n = 887$ remained of which 514 (58%) indicated they had never registered as organ donors. An expressed willingness to register may not translate to actual behavior as a proxy for actual registration behaviour (Katz et al., 2019). Therefore, we resurveyed all non-registered respondents at time 1 three months later to determine whether they had actually registered. Of the 272 respondents who replied (53%), we recorded each participant as having registered if they: (1) indicated they had since registered ($n = 12$), or (2) clicked and stayed for three minutes or more on the optional registration link of the Australian Organ Donor website provided before the end of the survey and subsequently confirmed they had registered ($n = 21$). If neither of these conditions were met, we recorded them as having not registered.

Measures

All measures in the study were derived from established scales and where needed were adapted to the context. All self-report items were evaluated using 1 (strongly disagree) to 7 (strongly agree) Likert scales. Justice perceptions were adapted from Colquitt (2001). Social inclusion items were adapted from the General Belongingness Scale (Malone et al., 2012). Institutional trust in organ donation and transplant systems was measured using items from Robinson et al. (2012) and Siminoff, Burant & Ibrahim (2006). Trust in others was adapted from Molm, Collett & Schaefer (2007), whilst measures for affective and normative commitment were adapted from Allen and Meyer (1990).

Donor registration intention is the most proximate factor underlying registration behavior (Armitage & Conner, 2001), and consistent with Gerend and Shepherd's (2012) recommendation, as the aim of this study is to compare the TPB with CDB, it is appropriate to "level the playing field" (p.9). Thus the choice was to either include intentions in the comparison model or exclude it from the TPB. The former approach was decided upon and intentions to register was measured using three items from Newton et al. (2013). Donor registration status was self-reported using a single item, "Are you a registered organ donor?" Last, measures for TPB constructs were adopted from Newton et al. (2013).

Control Variables

The study controlled for three factors known to affect organ donation behavior: organ donation knowledge, experience with organ donation or transplantation, and religiosity (Falomir-Pichastor et al., 2013). Knowledge was measured as the sum of the correct answers in Sander and Miller's (2005) 11-item scale. Experience—assessed as a person's acquaintance with someone who had donated or received an organ—was measured using 4-items of Rumsey, Hurford and Cole's (2003) scale. Religiosity was measured using the scale of Stephenson et al. (2008), which consisted of two dimensions. The first included beliefs about preserving bodily integrity; the second about beliefs in God. Non-religious individuals have higher registration rates (Vorstius Kruijff et al., 2018), while those who believe the body should be buried whole are less willing to register (Stephenson et al., 2008).

Statistical Analysis

The two models were compared according to: (1) how well each model fitted the data, (2) the degree of variance explained in intentions, and their capacity to predict and explain registration

behavior (Gerend & Shepherd, 2012). Data analysis was undertaken using Mplus version 7 (Muthén & Muthén, 2013), using the maximum likelihood robust (MLR) estimator. Following the 2-step approach recommended by Gerbing and Anderson (1988), the unidimensionality and reliability of factors were assessed via a measurement model, and the hypothesized relationships were tested via structural equation modelling. Model fit is indicated by a non-significant chi-square (χ^2), a χ^2 to degrees of freedom ratio of less than 2, a comparative fit index (CFI) greater than .90, a root mean square error of approximation (RMSEA) less than .06, and a standardized root mean square residual (SRMR) less than .08 (Hu & Bentler, 1999). For the confirmatory factor analysis, reliability of each factor is indicated by a composite reliability (CR) greater than .70, and an average variance extracted (AVE) greater than .50 (Bagozzi & Yi, 2012). Discriminant validity is indicated by the square root of each factor's AVE exceeding its correlation with other factors (Fornell & Larcker, 1981).

Although all perception measures were gathered through a single survey, care was taken in survey design to reduce the potential for common method variance (CMV) (Podsakoff et al., 2003). Notwithstanding this preventative action, the potential influence of CMV was checked by Harman's one factor test which showed low likelihood of CMV and a more robust sensitivity test (Lindell & Whitney, 2001) using assumed levels of CMV at 0%, 1%, 5% and 10% of the items' total variance. As reported in online supplement Table 1, all pathways remained robust with few exceptions. As these non-significant path coefficients were relatively small in the original model (for instance, the unstandardized relationship between societal inclusion and interpersonal trust was .12), an alternate possibility is that there was insufficient statistical power to detect these small effects when a high level of CMV was assumed.

Results

Descriptive Statistics and Confirmatory Factor Analysis

Descriptive statistics are presented in the online supplement Table 2. To test the hypothesized factor structure, a confirmatory factor analysis which included all variables from the TPB and the CDB frameworks was conducted, which yielded the following fit statistics:

$\chi^2(df = 2264) = 4299.019, p = .000, \chi^2/df = 1.899, CFI = .926, RMSEA = .042$ (90% CI: [.040, .044]), SRMR = .049. To diagnose model misspecifications, the residual correlation matrix and modification indices were inspected, which revealed a small number of non-zero residual covariances. We removed three items (“If doctors know I am an organ donor they won’t try as hard to save my life” from Institutional Trust, and “Unpleasant/pleasant”,

“Unenjoyable/enjoyable” from Attitudes) due to cross-loadings with other items. After their removal, there appeared to be no further systematic pattern and we therefore retained the revised measurement model. The revised measurement model yielded the following fit statistics:

$\chi^2(df = 2060) = 3589.734, p < .001; \chi^2/df = 1.743, CFI = .942; RMSEA = .038$ (90% CI: [.036, .040]), SRMR = .046. In the online supplement, we present the measurement model and its standardized factor loadings, as well as an item-level correlation matrix with all indicators included.

The square root of the AVE for each factor is presented in the diagonal of the online supplement Table 2. Most factors were found to possess discriminant validity, except for Procedural and Interactional Justice. This finding suggests evaluations of procedural justice (i.e., policies, rules and regulations) are strongly entwined with interpersonal treatment received from hospital personnel. Based on a similar finding, Blader and Tyler (2003) argued that fairness

perceptions are strongly influenced by interactions with the “authorities” responsible for communicating and implementing rules and policies. Thus, procedural justice was removed from further analyses.

Comparison of theories

The hypothesized relations as predicted by the TPB are presented in Table 1. Intention to register as an organ donor was positively and significantly related to subsequent registration behavior. In addition, both subjective norm and attitude were positively related to intention to donate. Conversely, the relationship between perceived behavioral control and intention to register was non-significant. The effects of the control variables were small, unsystematic and non-significant. Intentions explained 39% of the variance in registration behavior at time 2.

Insert Table 1 about here

The relationships associated with the CDB framework are presented in Table 2. Intention to register as an organ donor was positively related to registration behavior. Both distributive (H1a) and interactional (H1b) justice were positively associated with institutional trust. Social inclusion (H2) and institutional trust (H3) were positively related to trust in others. Further, institutional trust was positively associated with both normative commitment (H4a) and affective commitment (H4b). Trust in others was also positively related to normative (H5a) and affective commitment (H5b). Normative commitment was positively related to intentions to register as an organ donor (H6a), but the relationship between affective commitment and intention was non-significant (in contradiction of H6b). Similar to TPB, intentions explained 34% of the variance in actual registration behavior at time 2.

Among the control variables, religious beliefs about the body were negatively associated with both forms of commitment and intention to register. Conversely, organ donation experience was positively associated with both forms of commitment. The effects of the other controls failed to reach significance.

Insert Table 2 about here

Discussion

This study demonstrates the comparable ability of the CDB model to predict organ donation registration intentions and subsequent registration behavior relative to TPB. The CDB identifies registration intentions as a function of normative commitment to organ donation registration, stemming from trust in other society members and trust in health institutions. This is compared with the TPB where registration intentions are weakly associated with individual attitudes even though the specificity of the measured attitude matched the specificity of the behavior under consideration e.g., registration (Siegel et al., 2014). Such a result reinforces earlier findings demonstrating little value in improving favorable attitudes towards registering as an organ donor, as the association with donor registration behavior is weak at best (e.g., Morgan et al., 2008; Quick et al., 2016). Subjective norms were strongly related to registration intentions, but perceived behavioral control was not. Although past research has suggested that an individual's doubts about the ability to perform the registration act have been a barrier to registering (Vorstius Kruijff et al., 2018), the non-significant finding would suggest an increased public awareness of the ease and convenience of donor registration (Quick et al., 2016).

The CDB model draws on theories of social exchange and collective behavior to suggest an alternative indirect set of factors (inclusion and justice perceptions) that drive donor commitment and subsequent registration behavior. The CDB, therefore, provides additional insights into registration behavior not captured by the TPB. Although both normative and affective commitment were expected to be significantly associated with registration intentions, there are several possible explanations for the non-significance of affective commitment in the study. First, affective commitment is more likely to be a driver of ongoing prosocial behaviors, such as volunteering and blood donation, where affective commitment develops as the “cause” becomes integral to an individual’s identity (Tidwell, 2005). Indeed research suggests that affective commitment is less important to an initial prosocial act, becoming salient when the behavior becomes ongoing (Callero & Piliavin, 1983). The one-off nature of organ donor registration may therefore be less likely to foster affective commitment. Second, the high correlation between the two variables ($r=0.86$) may explain why attitudinal commitment was non-significant. Meyer and Herscovitch (2001) point to disagreement about whether the two forms of commitment are distinguishable, citing the high correlations often found between the two.

Although the efficacy of active in-person approaches to promote organ donation registration, such as training healthcare professionals in organ donation communication, has been demonstrated (Jones et al., 2017), the CDB framework suggests such focused engagement is more likely to result in favorable activation if the individual trusts health institutions. The relationship between trust and donation registration corresponds with the work of Sargeant et al. (2006) in which trust is shown to be essential to charitable donations because people cannot directly assess how well their donations are spent and so must rely on the organisation delivering

the service. Donor registration involves an additional element of uncertainty because registration is a behavior with a long-term horizon—that is, one registers with no idea whether, when, or under what circumstances donation will actually take place. Consequently, registered donors must trust the institutions that underpin organ donation and transplant systems. Much research investigating the poor registration rates of ethnic minorities has emphasized a pervasive lack of trust in the healthcare system (Morgan et al., 2013). However, lack of trust in healthcare institutions is not simply an issue for minority populations as there are suggestions of rising consumer cynicism and scepticism towards institutions more generally (Mitchell, 2018).

The CDB model also facilitates an understanding of how to assess and ultimately promote fairness perceptions in the health institutions that individuals interact with. Justice evaluation is used as a means of gauging institutional trust, which helps people cope with the uncertainty regarding health authority actions (Colquitt et al., 2012). In this study, interactional justice contributed most to institutional trust. This may be because when people are unable to make judgments about larger institutional procedures and distributive processes, perceptions of personal interactions may serve as a proxy for overall judgments about organisations (Moorman, 1991). The significance of positive interpersonal experiences in this study is consistent with studies that find the perceived value of healthcare relates not only to instrumental outcomes but also to patient experiences within healthcare settings, such as being treated with dignity and respect in medical encounters (Mooney, 1998). Therefore, there is strong practical value in sensitizing health professionals to justice concerns to build institutional trust through improved patient interactions .

In addition to perceptions of justice, perceptions of social inclusion help build trust in others to contribute to public goods. Grassroot engagement of individuals at the local level through community events have been shown to be an effective means to improve social inclusion perceptions (i.e., Polonsky & Arambewela, 2015). Indeed, cultural festivals are commonly subsidized through a ‘social equity’ argument, where outcomes of inclusion are advocated (see Getz, 2009).

Notwithstanding the alternative pathways to donor registration behavior, both the TPB and CDB models have a strong normative basis. This suggests that norm-based messages promoting organ donation registration are useful. Marketing communications underpinned by TPB would stress the pressure for registration by family and friends (subjective norms). In contrast, marketing communications underpinned by the CDB model would focus on the moral obligation to others (normative commitment). Importantly focusing on a collective responsibility to register and a shared fate around the issue of organ donation and transplantation may be a way to motivate those whose failure to register is founded on inertia rather than negative perceptions of deceased donation and transplantation.

Limitations and Future Research

While the online panel used in the study was reflective of the Australian population, it is inevitably biased towards people who are motivated to join panels. Consequently, some of the country’s more vulnerable populations were likely to be excluded from the sample. Given that minority groups, such as migrants and other ethnic minority populations, are less likely to register as donors, the potential omission of such groups has probably reduced the variance in responses. This suggests that the results may well underestimate the influence of social inclusion,

justice, and trust on donor registration. Despite the relatively high mean scores for these constructs, the CDB pathways were nonetheless significant. Future research may focus on assessing the strength of the CDB model with marginalized populations in comparison with the general population.

Second, although social exchange theory underpins the CDB model where trust is the key mediator, an alternative mediating pathway could be social identity. This is because the development and maintenance of a favorable identity stemming from interactional justice perceptions strongly influences cooperation that is discretionary in nature (Blader & Tyler, 2003). Indeed, consumers who strongly identify with a cause or organization are motivated to engage in acts that help the firm to achieve its goals (Bhattacharya & Sen, 2003). Thus future research could test this alternative mediating variable.

Conclusion

The aim of this paper was to test an alternative framing to organ registration that draws attention away from the individual's attitude towards organ donation, to refocus on the individual's interactions within his/her community and institutions. The CDB model is useful in predicting organ registration intentions and behavior and is of comparable performance to the TPB. Further, it also provides a level of specificity about drivers of donor registration behavior not found in the TPB. For example, a central criticism of the TPB is that it provides little insight to guide the design of interventions to effect behavioral change (Sniehotta et al., 2014). In contrast, the CDB suggests a number of focus areas for policymakers and public service announcements. These include building community inclusiveness and trust in health institutions so that a shared fate in relation to donation and transplantation is fostered. In summary, the TPB and the CDB come

with their own inherent strengths and limitations but as illustrated here, their differential contribution to understanding the donor registration act is promising.

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Tables

Table 1. Theory of Planned Behavior: Standardized Path Coefficients for Structural Model

	Intention to Register	Registration as a Donor
Attitude	.11*	
Subjective Norm	.57***	
Perceived Behavioural Control	.07	-.21
Intention to Register		.63***
Religiosity (Beliefs about Body)	-.07	
Religiosity (Beliefs about God)	-.01	
Knowledge of Organ Donation	.00	
Organ Donation Experience	.02	
<i>R</i> ²	.45	.39

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Model fit: $\chi^2(df = 154) = 473.665$, $p < .001$, $\chi^2/df = 1.899$, CFI = .941, RMSEA = .064 (90% CI: [.057, .070]), SRMR = .074.

Table 2. Collective Donor Behavior Framework: Standardized Path Coefficients for the Structural Model

	Institutional Trust	Trust in Others	Normative Commitment	Affective Commitment	Intention to Register	Registration as a Donor
Distributive Justice	.17**					
Interactional Justice	.39***					
Social Inclusion		.14*				
Institutional Trust		.23***	.27***	.24***		
Trust in Others			.16**	.20***		
Normative Commitment					.65***	
Affective Commitment					-.03	
Intention to Register						.59***
Religiosity (Beliefs about Body)			-.15*	-.17**	-.09*	
Religiosity (Beliefs about God)			.01	.10	-.02	
Knowledge of Organ Donation			-.04	-.06	.03	
Organ Donation Experience			.18***	.22***	.03	
R ²	.27	.09	.19	.21	.45	.34

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Model fit: $\chi^2(df = 914) = 2160.293, p < .001, \chi^2/df = 2.364, CFI = .928, RMSEA = .052$ (90% CI: [.049, .054]), SRMR = .100.

Figures

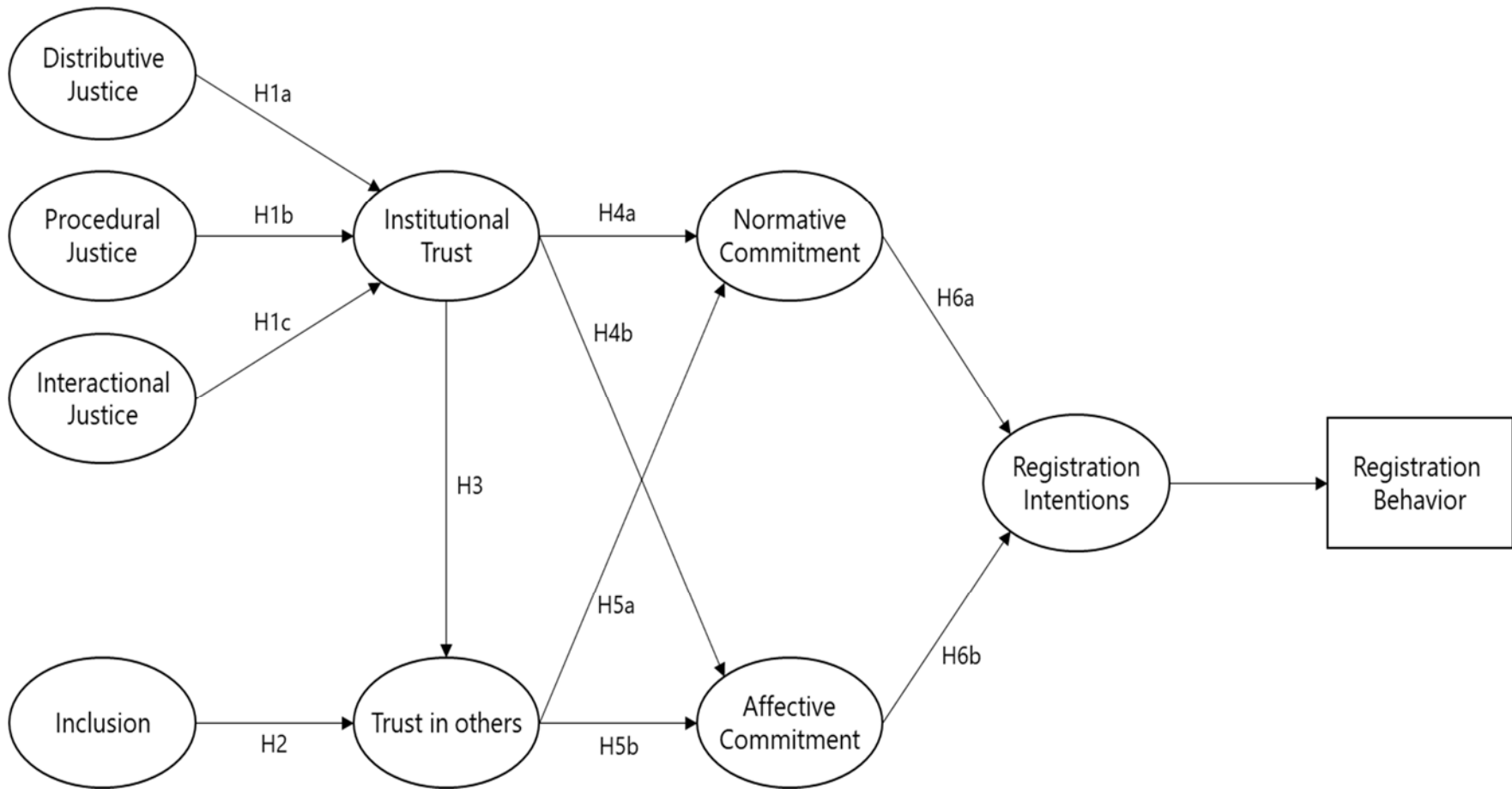


Figure 1. The Collective Donor Behavior Model

Online Supplement

Table 1. Common Method Variance (CMV) Sensitivity Test

Structural Paths	CMV Assumed % of Total Variance Among Indicators			
	0%	1%	5%	10%
Theory of Planned Behavior				
Attitude -> Intentions	.14*	.14*	.14*	.14*
Subjective Norm -> Intentions	.84***	.85***	.85***	.85***
Perceived Behavioural Control -> Intentions	.11	.11	.11*	.11*
Religiosity (Beliefs about Body) -> Intentions	-.09	-.09	-.10	-.10
Religiosity (Beliefs in God) -> Intentions	-.01	-.01	-.01	-.01
Donor Behavior Model				
Interactional Justice-> Institutional Trust	.14**	.14**	.12*	.11*
Distributive Justice -> Institutional Trust	.32***	.32***	.30***	.28***
Institutional Trust -> Interpersonal Trust	.23***	.23**	.20**	.17*
Societal Inclusion -> Interpersonal Trust	.12*	.12*	.10*	.07
Institutional Trust -> Normative Commitment	.41***	.41***	.39***	.37***
Interpersonal Trust -> Normative Commitment	.25**	.24**	.22*	.18
Religiosity (Body) -> Normative Commitment	-.18*	-.18*	-.17*	-.15
Religiosity (Belief in God) -> Normative Commitment	.00	.01	0.01	.02
Institutional Trust -> Affective Commitment	.31***	.31***	.29***	.27**
Interpersonal Trust -> Affective Commitment	.26***	.26***	.24**	.21*
Religiosity (Body) -> Affective Commitment	-.19**	-.18**	-.18*	-.16*
Religiosity (Belief in God) -> Affective Commitment	.07	.07	.07	.08*
Normative Commitment -> Intentions	.75***	.74***	.74***	.74***
Affective Commitment -> Intentions	-0.04	-0.04	-0.05	-0.05
Religiosity (Beliefs about Body) -> Intentions	-.13*	-.13*	-.12*	-.12*
Religiosity (Beliefs in God) -> Intentions	-.02	-.02	-.02	-.02

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. All path coefficients are unstandardized.

Table 2. Means, Standard Deviations and Correlations Among Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Registered as a Donor (0 = No, 1 = Yes)	--	-.01	-.01	.11	.19**	-.02	.25***	.01	.11	.03	.05	.04	.05	.20***	.15*	-.10	.02
2. Knowledge of Organ Donation	-.07	--	-.14**	.13**	.08	.21***	.09*	.25***	-.07	.17***	.05	.09	.05	.00	.04	-.35***	-.13**
3. Organ Donation Experience	.01	-.07	--	.15***	.23***	-.01	.16***	.05	.07	.05	-.05	-.04	-.04	.25***	.19***	.01	.11*
4. Attitude	.11	.14**	.15**	(.85)	.47***	.15***	.44***	.42***	.30***	.23***	.19***	.25***	.23***	.44***	.51***	-.40***	-.10*
5. Subjective Norm	.22***	.06	.27***	.51***	(.76)	.14**	.58***	.27***	.22***	.22***	.14**	.13**	.15***	.59***	.69***	-.16***	-.03
6. Perceived Behavioral Control	-.03	.21***	-.01	.17**	.15*	(.90)	.18***	.27***	.05	.30***	.27***	.23***	.23***	.04	.10*	-.19***	-.01
7. Intention to Register	.25***	.09*	.16**	.45***	.66***	.19***	(.96)	.26***	.13**	.17***	.04	.09*	.11*	.51***	.63***	-.22***	-.06
8. Institutional Trust	.02	.23***	.06	.44***	.27***	.26***	.26***	(.86)	.29***	.31***	.45***	.49***	.48***	.29***	.34***	-.32***	-.08
9. Trust in Others	.07	-.10*	.07	.31***	.23**	.03	.12*	.27***	(.89)	.21***	.33***	.40***	.39***	.28***	.25***	-.04	.10*
10. Social Inclusion	.04	.18***	.04	.25***	.22***	.32***	.17**	.31***	.20***	(.88)	.39***	.38***	.41***	.17***	.23***	-.17***	.12**
11. Distributive Justice	.00	.07	-.06	.19***	.12*	.30***	.03	.45***	.30***	.40***	(.81)	.70***	.78***	.13**	.16***	-.04	.03
12. Interactional Justice	.00	.09*	-.04	.27***	.11	.25***	.09	.50***	.40***	.40***	.70***	(.91)	.86***	.19***	.19***	-.14**	.02
13. Procedural Justice	.00	.07	-.05	.27***	.14*	.26***	.12*	.52***	.40***	.43***	.79***	.92***	(.80)	.19***	.21***	-.14**	.02
14. Affective Commitment	.19***	.01	.25***	.46***	.69***	.05	.53***	.32***	.29***	.17**	.12*	.20***	.20***	(.91)	.79***	-.14**	.08
15. Normative Commitment	.15**	.04	.21***	.55***	.81***	.11*	.66***	.36***	.25***	.22***	.15**	.20***	.23***	.86***	(.85)	-.16***	-.01
16. Religiosity (Beliefs about Body)	-.04	-.36***	-.01	-.46***	-.18**	-.19***	-.24***	-.33***	-.03	-.19***	-.06	-.15**	-.16**	-.19***	-.21***	(.87)	.36***
17. Religiosity (Beliefs about God)	.00	-.11**	.09*	-.10*	-.06	.02	-.07	-.08	.10*	.14**	.03	.03	.02	.07	-.03	.33***	(.89)
Mean	.31	4.29	.63	5.19	4.00	5.90	3.91	5.07	4.48	5.39	5.21	5.21	5.00	3.77	4.02	2.63	3.54
SD (above diagonal; observed variables)	.24	1.83	1.03	1.45	1.31	1.32	1.73	1.24	1.13	1.26	1.14	1.26	1.10	1.43	1.50	1.57	1.94
SD (below diagonal; latent variables)	.24	1.83	1.03	1.30	1.12	1.17	1.69	1.00	.98	1.14	1.22	1.22	1.01	1.32	1.51	1.23	1.90

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Correlations among the observed scale means are presented above the diagonal; correlations among the latent variables are presented below. The square root of the average variance extracted is presented in the diagonal.

Table 3. Standardized Factor Loadings for the Measurement Model

Indicator	Loading
Attitude (Alpha = .89, Omega = .89)	
To me, being or becoming a registered organ donor is: Unimportant/important	.89
To me, being or becoming a registered organ donor is: Worthless/valuable	.87
To me, being or becoming a registered organ donor is: Bad/good	.80
Subjective Norm (Alpha = .81, Omega = .80)	
It is expected that I will be a registered organ donor	.84
Most people who are important to me think that I should be a registered organ donor	.76
The people in my life whose opinions I value would approve of me being a registered organ donor	.69
Perceived Behavioral Control (Alpha = .92, Omega = .92)	
Whether or not I am or become a registered organ donor is within my personal control	.93
I feel that I have complete control over whether or not I am a registered organ donor	.89
Whether or not I am or become a registered organ donor is entirely up to me	.86
Intention to Register (Alpha = .97, Omega = .97)	
I expect to become a registered organ donor	.97
I intend to become a registered organ donor	.96
I am likely to become a registered organ donor	.96
Institutional Trust (Alpha = .93, Omega = .93)	
The organ donation and transplant system has high integrity	.95
The organ donation and transplant system is honest	.94
Organ donation and transplant staff are competent	.88
When patients are eligible to donate organs, doctors can be relied upon to pronounce death correctly	.78
Hospitals use donated organs as they are intended to be used	.73
Trust in Others (Alpha = .94, Omega = .94)	
I can rely on people in Australia to register as donors	.95
I can depend on other people in Australia to register as donors	.93
People in Australia can be trusted to register as donors	.88
I trust that other people in Australia will register as donors	.79

Social Inclusion (Alpha = .95, Omega = .95)	
I feel connected with others in Australia	.94
I have a place at the table with others in Australia	.92
I feel accepted by others in Australia	.91
I have a sense of belonging in Australia	.91
When I am with other people in Australia, I feel included	.82
I have close bonds with family and friends in Australia	.77
Distributive Justice (Alpha = .90, Omega = .91)	
I have access to hospital care I need	.92
I have fair access to hospital care	.92
I have as much access to hospitals as everyone else	.77
If I need to go to hospital, I can	.77
I feel hospital resources are shared fairly	.67
Interactional Justice (Alpha = .97, Omega = .97)	
Hospital staff deal with me in a truthful manner	.95
Hospital staff do what's best for me	.92
Hospital staff respect my rights as a person	.91
I am treated with dignity in my encounters with hospital staff	.91
Hospital staff provide me with timely information about my care	.90
Hospital staff give me an honest explanation for the decisions they make	.89
Procedural Justice (Alpha = .92, Omega = .92)	
Decisions about my care in hospital are based on accurate information	.89
Hospital procedures uphold ethical and moral standards	.88
Decisions about my care in hospital are unbiased	.83
I am able to query decisions about my care in hospital	.83
I am treated the same as other people in hospital	.78
I am able to express my views in hospital	.77
I am able to influence my treatment in hospital	.60
Affective Commitment (Alpha = .94, Omega = .94)	
I really feel the organ donation shortage problem is my own	.93
I feel emotionally attached to the cause of organ donation	.92
I am passionate about organ donation	.89
Normative Commitment (Alpha = .93, Omega = .93)	
I feel a personal responsibility to register as a donor	.93
I feel it is morally right for me to register as a donor	.89

I feel obliged to register as a donor	.86
I would feel guilty if I did not register as a donor	.83
I feel that if I am willing to accept an organ transplant, I have an obligation to register as a donor	.73
Religiosity (Beliefs about Body) (Alpha = .89, Omega = .90)	
Removing organs from the body just isn't right	.95
The body should be kept whole for burial	.90
People who donate their organs risk displeasing God or nature	.73
Religiosity (Beliefs about God) (Alpha = .92, Omega = .92)	
My belief in God (or a higher power) has a great deal of influence on the way I choose to act each day	.98
I am sure that God (or a higher power) is active in my life	.89
Prayer is a regular part of my daily life	.80

Note. Model fit: $\chi^2(df = 1696) = 3008.204$, $p < .001$, CFI = .945, RMSEA = .039, SRMR = .047. Cronbach's Alpha and Coefficient Omega (Total) reliability measures (Green & Yang, 2015) are presented above. The measurement model does not include the dichotomous items related to organ donation knowledge and experience. We did not include any cross-loadings or correlated errors within the model.



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