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How sympathy and fear mediate the interplay between benefit and scarcity appeal organ donation messages

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ABSTRACT

Background: Organ transplantation is the most effective medical procedure to save people who are suffering from terminal organ failure. However, shortages of transplantable organs remain a universal problem. Although more than 90% of the U.S. population supports the concept of organ donation, only 60% are registered donors.

Method: A 2 (other-benefit appeal vs. self-benefit appeal) $\times$ 2 (nonscarcity vs. scarcity appeal) online experiment ($N = 312$) was conducted to examine how sympathy and fear mediate the interplay between benefit and scarcity appeal in organ donation messages.

Results: Other-benefit appeal message generated more sympathy than self-benefit appeal message in organ donation. The nonscarcity condition generated more positive attitudes toward organ donation than the scarcity condition. Sympathy and fear, respectively, exerted a significant impact on attitude and organ donation intentions under the nonscarcity and scarcity conditions.

Conclusion: The results revealed that both sympathy and fear are underlying mechanisms that can change people's attitudes and intentions of organ donation through different routes. Sympathy motivates people through altruism to reduce others' suffering, whereas fear motivates people through viewing organ donation behavior as a value to help themselves cope with the fear of death. Because organ donation can remind people of their own death, resource scarcity can exacerbate people's self-related fear of death, which may motivate them to suppress organ donation-related thoughts, rather than use organ donation as a defensive mechanism to cope with fear of death.

KEYWORDS

Organ donation; other-and self-benefit appeal; resource scarcity; sympathy; fear

Although dialysis therapy and pacemakers have been widely used for kidney and heart disease [1,2], organ transplantation is considered as the most effective therapeutic choice for organ failure [3]. However, the shortage of transplantable organs remains a universal issue [4]. Even though more than 90% of the U.S. population supports the concept of organ donation, only 60% are registered as donors [5]. In this study, I aim to investigate how to persuade people to become posthumous organ donors. Currently, there are different routes to allow deceased donors to donate their vital organs (e.g. heart and kidney), tissues (e.g. cornea and skin), and bone marrow. For example, people can register as posthumous organ donors by enrolling in their state online registry, designating their wishes on driver licenses, or signing a donor card. Organ donation is an ambivalent prosocial behavior that reflects the tension between social values (compassionate behaviors make a person a valuable entity in the world) and defensive needs (people are aware of the threat of their own mortality [6]). On the one hand, organ donation allows people to help others. On the other hand, organ donation

reminds people of their own mortality. Therefore, apart from cognitive factors such as knowledge of organ donation, noncognitive factors, such as perceived benefits of organ donation, also affect people's organ donation decision-making.

Morgan et al. [7] found that the noncognitive factor of perceived benefits of organ donation plays a cardinal role in the willingness to donate. The benefits perceived by organ donors relate to a sense of being a hero after death by saving others' lives or of spiritual survival after death through organ recipients [8]. Cohen and Hoffner [9] discovered that, when people perceive a lower-level risk in organ donation, they tend to value self-benefits more, such as adding extra meaning to one's life, becoming more respected by family and friends, and feeling proud. The enhanced self-benefits of organ donation tend to motivate people to register as organ donors. However, because the ultimate goal of organ donation is to save others' lives, organ donation also reflects altruistic motivations [10]. Without conducting an experiment to examine the cause-and-effect relationship between benefit appeal and willingness to become

organ donors, we cannot fully understand which type of appeal exerts more influence on people's organ donation decision-making. Therefore, this study conducted an experiment to examine which type of benefit appeal is more effective in persuading people to become organ donors.

Organs are scarce resources. When reminded of resource scarcity, people's scarcity mindsets are activated and can change their decision-making [11]. According to commodity theory, 'any commodity will be valued to the extent it is unavailable' ([12], p. 246). Although an organ is not a commodity, having a lack of organs can make people consider them more valuable. Hence, after they are reminded of resource scarcity, people tend to prioritize their own welfare [13]. Logically, resource scarcity will increase selfish behavior because people tend to amplify their own benefits at the cost of others. However, when selfish behavior not only can benefit the self but also others, reminders of resource scarcity can promote prosocial behavior [14]. Scarcity of donated organs indicates a lower chance that people themselves and their loved ones can be saved. Therefore, resource scarcity is a potential moderator of the effectiveness of self and other benefit appeal organ donation messages.

Furthermore, as a prosocial behavior, organ donation can trigger sympathy and fear. Previous studies have found that organ donation is associated with sympathy [15] and fear [10]. Sympathy emphasizes taking the perspective of others, and it promotes people's prosocial behavior by focusing on alleviating others' suffering. Sympathy is a potential underlying mechanism between other-benefit appeal and people's willingness to become organ donors. Fear has low certainty and high perceived risk [16]. When fear-relevant stimuli are highly relevant to the individual, people react faster and more intensely [17]. Because resource scarcity can promote self-benefit orientation, fear is a potential underlying mechanism between self-benefit appeal and people's willingness to become organ donors when resource scarcity is salient. Therefore, this study examines how sympathy and fear mediate the interplay between benefit appeal and scarcity appeal on attitude and intention of becoming organ donors.

Literature review

Organ donation reflects both other- and self-benefit and is characterized by resource scarcity. When other-benefit appeal is salient, other-focused emotion, such as sympathy, will be triggered. In contrast, when self-benefit appeal is provoked, it will remind people of their own mortality and cause fear of organ donation. Under the resource scarcity condition, people tend to value their own welfare when

competitive orientation is activated. Hence, resource scarcity tends to moderate the effect of other- and self-benefit appeal. Furthermore, because other- and self-benefit are associated with sympathy and fear, respectively, this study will investigate sympathy and fear as underlying mechanisms behind the interplay between resource scarcity and benefit appeals. Therefore, this study will examine other- and self-benefit appeal, resource scarcity, sympathy, and fear in the following literature review.

Other- and self-benefit appeal

Organ donation can be considered as an altruistic behavior aimed at benefiting others rather than oneself [10]. Prior studies have found that people have identified several benefits of organ donation for others, such as saving lives and making scientific contributions [10,18]. Therefore, organ donation is purely altruistic if the donor's sole motivation is helping others, without asking for personal gains. Under other-benefit appeal, people focus more on interdependent attributes and have the greater perspective-taking ability [19,20].

In addition to altruism, people's motivation for performing prosocial behavior can also derive from egoism [21]. As safeguarding and seeking self-interest are innate traits [20], a desire to benefit oneself can also motivate people to make charitable donations. Self-benefit varies from the tangible, such as gifts, to the intangible, such as feeling good about oneself [22]. The perceived self-benefits of becoming organ donors include the sense that part of oneself may survive after death [23], increased self-esteem [24], a feeling of pride [25], and improved self-worth [26]. Hence, under self-benefit appeal, people pay more attention to independent attributes and self-relevant consequences [20]. Given the different features of other- and self-benefit appeal, it is still not clear which type of message will be more effective in influencing people's attitudes toward organ donation. Hence the following research question is proposed:

RQ 1: Which type of message appeal – other-benefit or self-benefit – is more effective in generating (a) more positive attitudes toward organ donation, (b) greater intentions of organ donation registration and promotion.

Reminders of resource scarcity in prosocial behavior

Resource scarcity can take various forms, such as food, money, products, and time [27,28]. Because scarcity derives from the imbalance between demand and supply, it can lead to more competition for limited resources [27]. Hence, being reminded of resource scarcity leads people to more self-focused behaviors,

such as having more candy, and less other-focused behaviors, such as donating to charities [29]. However, previous studies have found that people who have fewer resources tend to be more generous compared to people who have abundant resources [30,31]. When resources are scarce, people need to depend on each other for valuable resources [30]. Therefore, competitive orientation under the scarcity condition motivates people to amplify their own welfare, but when generous behavior can bring in personal gains, people tend to perform prosocial behaviors under the scarcity condition [32]. Because the perceived self-benefits of organ donation include self-survival after death and increased self-worth, messages about the self-benefits of organ donation correspond with the feature of resource scarcity.

Sympathy

Sympathy is an other-focused emotion that emphasizes having an interdependent relationship with others [33,34]. Interdependent relationships emphasize harmony and other related goals [35]. According to Wispé [36], sympathy has two dimensions: The first is letting people know that others' suffering is caused by the plight they experienced. The second dimension involves taking actions to mitigate others' suffering. Wispé [36] asserted that sympathy is characterized by feeling others' pain and is also composed of the desire to do something to assuage that pain. Compared to empathy, which derives from 'perspective taking' [37] or 'role taking' [38], sympathy is the affective aspect of an empathy experience, which features experiencing others' feelings [39]. Therefore, sympathy aims to make people vicariously aware of others' suffering and motivates them to take actions to relieve that suffering. Because the goal of organ donation not only focuses on expecting people to experience others' feelings but also seeks to motivate them to become organ donors, sympathy plays a vital role in organ donation.

Because other-benefit appeal also emphasizes interdependent features and showing concern for others' welfare, the sympathy feature corresponds to other-benefit appeal. Cohen and Hoffner [9] also found that other-benefit appeal can predict organ donation willingness with greater empathic concern. Hence, compared to self-benefit appeal, other-benefit appeal generates more sympathy. Because sympathy can positively affect organ donation attitudes [40] and behavioral intention to become organ donors [15], enhanced sympathy will induce more positive attitudes toward organ donation. Therefore, when resource scarcity is not salient, other-benefit appeal message will generate more sympathy than self-benefit appeal message. The increased sympathy induced by other-benefit appeal message will

generate more positive attitudes toward organ donation than will self-benefit appeal message.

H1: Under the nonscarcity condition, other-benefit appeal message will generate more sympathy than self-benefit appeal message.

H2: Under the nonscarcity condition, other-benefit appeal message will be more effective than self-benefit appeal message in generating (a) more positive attitudes toward organ donation, and (b) greater intentions of organ donation registration and promotion.

H3: Under the nonscarcity condition, sympathy will mediate the effect of a benefit appeal message on (a) attitudes toward organ donation, and (b) intentions of organ donation registration and promotion.

H4: When resource scarcity is salient, self-benefit appeal will be more effective than other-benefit appeal in generating (a) more positive attitudes toward organ donation, and (b) greater intentions of organ donation registration and promotion.

Fear

Fear is an emotion that emphasizes the possibility of future negative consequences [41]. Because fear is a discrete emotion, fear has unique characteristics and functions that are different from those of other emotions [42]. According to the appraisal tendency framework [16], compared to other negative emotions (e.g. anger), fear is characterized by low certainty and control. Certainty reflects whether people perceive situations as predictable or unpredictable. Control reflects whether event outcomes can be attributed to individual or situational factors [16,43]. Therefore, under the emotion of fear, people tend to perceive negative events as unpredictable and lacking control. Fearful people tend to avoid future harm and have pessimistic risk assessments about the future compared to people who experience anger and happiness [16]. Fear motivates people to protect themselves from future threats [44,45]. When fear-relevant stimuli are highly relevant, people tend to perceive fear in a more salient way [17] because people need to identify the imminent threat to protect themselves.

Organ donation may remind people of their own mortality [46]. Under the mortality-salient condition, because resource scarcity can activate people's competition mode to focus more on self-benefits, reminding people of the scarcity of organs can further induce them to concentrate on their own mortality. Because fear tends to be strengthened under self-relevant stimuli, resource scarcity will trigger more self-related fear. Furthermore, self-benefit appeal also emphasizes self-relevant stimuli in organ donation, which further accentuate self-related fear. Therefore, under the resource scarcity condition, the self-benefit appeal will generate more fear than the other-benefit

appeal. However, when people are not reminded of resource scarcity, other-benefit appeals that concentrate on reducing others' suffering will generate more fear.

H5: (a) Under the resource scarcity condition, self-benefit appeal message will generate more fear than other-benefit appeal message; (b) under the nonscarcity condition, other-benefit appeal message will generate more fear than self-benefit appeal message.

H6: Under the scarcity condition, fear will mediate the effect of benefit appeal on (a) attitudes toward organ donation, and (b) intentions of organ donation registration and promotion (see hypothesized structural model, Figure 1)

Method

Pilot test

A pilot test ($N = 114$) was conducted to analyze the stimuli. Participants were recruited from Amazon MTurk, among people who resided in the United States. Participants were randomly assigned to one of four conditions: other-benefit appeal message without resource scarcity, self-benefit appeal message without resource scarcity, other-benefit appeal with resource scarcity, and self-benefit appeal with resource scarcity. To test how the participants evaluated other- and self-benefit appeal message, this study adapted Clary et al.'s [47] measurements (e.g. to what degree is this an altruistic appeal [focused on helping others]). The results showed that participants who were exposed to other-benefit appeals focused more on other benefits ($M = 4.46$, $SD = .91$) than those exposed to self-benefit appeal messages ($M = 3.83$, $SD = .54$), $t(112) = -4.54$, $p < .001$.

As for resource scarcity appeal message, this study adapted Roy and Sharma's [48] measurements to evaluate scarcity salience (e.g. the message indicated a limited supply of organs). The results showed that participants who were exposed to scarcity appeal

message perceived organs as a scarcer resource ($M = 5.54$, $SD = 1.20$) than did participants who were only exposed to benefit appeal message without emphasizing the shortage of organ donation ($M = 4.98$, $SD = .21$), $t(112) = 2.14$, $p = .034$. Therefore, both benefit appeal messages and scarcity appeal messages were successfully manipulated.

Participants and experimental design

A total of 614 participants were recruited from Amazon Mechanical Turk (MTurk), who resided in U.S. 268 participants were screened out because they had already signed up to be a registered organ donor. Another 34 participants were removed because of incomplete questionnaire. A total of 312 non-organ donor participants were included in this study. There were 213 (68.3%) male participants and 99 (31.7%) female participants. The average age of participants was 37.72. Among them, there were 202 Caucasians (64.5%), 56 African Americans (17.9%), 23 Hispanic/Latinos (7.3%), 16 American Indian or Alaska Native (5.1%), 1 Native Hawaiian or Pacific Islander (.3%) and 7 other ethnicities (2.2%) (see Table 1). Participants were recruited from Amazon Mturk (MTurk) with \$0.8 as compensation. Participants first answered a question regarding whether they were a registered organ donor or not. Only participants who answered 'no' were included in the study. An online experiment was conducted to examine how sympathy and fear mediate the interaction between benefit appeal and scarcity appeal organ donation messages. The experiment was a 2 (other-benefit appeal vs. self-benefit appeal) $\times$ 2 (resource scarcity condition vs. nonresource scarcity condition) between-subjects factorial design.

There are two reasons that this study focuses on non-organ donors. First, since this study aims to complement Cohen and Hoffer's [9] study through an experiment to discover the causal relationship between perceived benefits and willingness to become organ

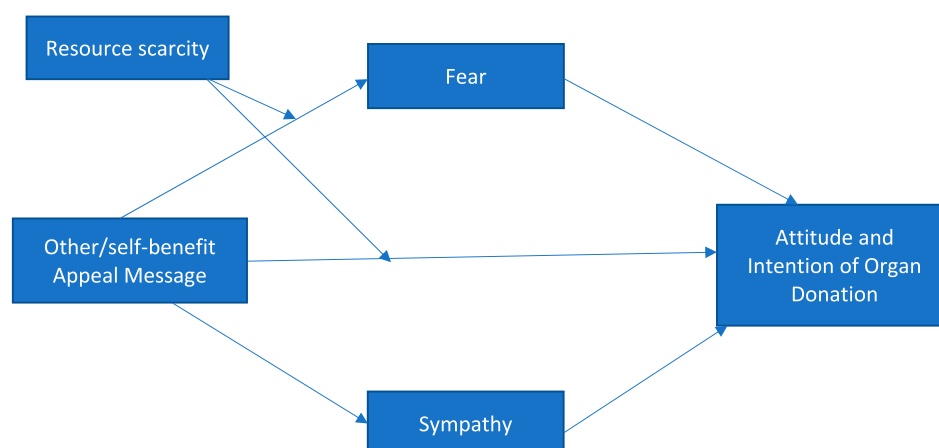


Figure 1. Hypothesized structural model.

Table 1. Descriptive statistics for demographic subjects.

Item	N	%
Age		
18–24	13	4.2
25–34	130	41.5
35–44	84	26.9
45–54	59	18.9
55–64	20	6.4
65 and above	6	1.9
Gender		
Male	213	68.3
Female	99	31.7
Education		
High school graduate (high school diploma or equivalent including GED)	16	5.1
Some college but no degree	11	3.5
Associate degree in college (2-year)	17	5.4
Bachelor's degree in college (4-year)	180	57.5
Master's degree	82	26.2
Doctoral degree	5	1.6
Professional degree (JD, MD)	1	.3
Ethnicity		
Caucasian	202	64.5
African American	56	17.9
Latino/Hispanic	23	7.3
Asian/Asian American	16	5.1
Native Hawaiian or Pacific Islander	1	.3
Other Ethnicities	7	2.2

donors, this study followed Cohen and Hoffer's [9] recruitment criteria by concentrating on non-organ donors. Second, although both cognitive factors, such as knowledge and attitude of organ donation, and noncognitive factors, such as medical mistrust and superstitions of organ donation, affect people's organ donation registration, noncognitive factors are more influential on organ donation decision-making than cognitive factors [7]. Even though over 90% of Americans have a positive attitude toward organ donation, only 60% of them registered as organ donors [5]. Hence, noncognitive factors of organ donation exert more impact on non-organ donors. As perceived benefits of organ donation, such as become a hero for saving another person's life, are under the umbrella of noncognitive factors of organ donation [7], examining the effect of perceived benefits on non-organ donors helps us understand how noncognitive factors influence non-organ donors' decision-making process. Therefore, this study specifically focuses on non-organ donors.

Procedure

Participants were randomly assigned to either a resource scarcity condition or a nonresource scarcity condition. In the resource scarcity condition, participants read either a piece of other- or self-benefit appeal message along with a piece of message that reminded people of organ scarcity. In nonresource scarcity condition, participants only read a piece of other- or self-benefit appeal message without any message reminding them of organ scarcity. After participants read one of four messages (other/self-

benefit appeal × resource scarcity/nonresource scarcity), they were asked to rate their emotions and fill out a survey of their attitudes and intentions of organ donation.

Other- and self-benefit appeal message

Other-benefit appeal message described the benefits received by organ recipients. The perceived other benefit emphasized how many people one could save by becoming an organ donor, such as 'one person can donate up to 8 lifesaving organs' [5] (see Appendix for full message). Conversely, self-benefit appeal message emphasized benefits to organ donors, such as 'add extra meaning to life' and 'endow death meaning' [9] (see Appendix for full message).

Resource scarcity appeal

Resource scarcity emphasized a high demand and short supply of organs, such as 'only 3 in 1000 people die in a way that allows for organ donation.' Furthermore, since resource scarcity also induces a competition mode focusing more on self-interest, this study also highlighted a self-relevant perspective in the scarcity appeal message (see Appendix for full message).

Measures

For the dependent variables, the attitude toward organ donation was measured using a 7-item, 7-point Likert-type scale (1 = Strongly disagree to 7 = Strongly agree) (Cronbach's $\alpha = .86$) [49]. Intention to promote an organ donation campaign was adapted from a previous study and measured by a 5-item, 7-point Likert-type scale (1 = Strongly disagree to 7 = Strongly agree) (Cronbach's $\alpha = .91$) [50]. Intention to sign up as an organ donor was measured by a 4-item, 7-point Likert-type scale (1 = Strongly disagree to 7 = Strongly agree) (Cronbach's $\alpha = .86$) [49]. However, as the dependent variables are highly correlated (correlation coefficient between .625 and .856), factor analysis was conducted to identify unique factors. According to Hair et al. [51], when a factor loading value is equal to .7 and above it, it is considered as a good indicator. Therefore, after removing factor loadings lower than .7 and cross loading factors, it results in two dependent variables: attitude toward organ donation ($\alpha = .74$) and intention of organ donation registration and promotion ($\alpha = .93$) (see Table 2). The measurements of sympathy and fear were adopted from differential emotions scale (DES) [52]. The DES consists of a list of different emotions, such as interest, pride, sympathy, fear, and guilt. Participants were instructed to indicate the intensity

Table 2. Pattern matrix for attitude and intention of organ donation.

Scale items	Factor loadings	
	Attitude	Intention
Attitude toward organ donation		
I believe that organ donation is an act of compassion.	.749	
I believe that organ donation is an unselfish act.	.817	
I view organ donation as a benefit to humanity.	.780	
Intention of organ donation registration and promotion		
I have been meaning to sign an organ donor card or enroll in the U.S. Organ and Tissue Donor Registry.		.810
I intend to sign an organ card or enroll in the U.S. Organ and Tissue Donor Registry.		.797
I intend to promote the organ donation campaign to my friends.		.843
I am most likely to promote the organ donation campaign to my friends.		.835
The organ donation message makes me promote the campaign to my friends.		.848
I intend to promote the organ donation campaign to my friends.		.822
Eigenvalue	1.31	5.04
Variance explained after rotation (%)	23.51	47.02

they felt after they were exposed to different types of messages (1 = Not at all to 7 = Extremely).

Hypotheses testing

To test the hypotheses, a series of ANOVA (analysis of variance) were conducted. H1 asserted that when not reminding people of resource scarcity, other-benefit appeal message would produce more sympathy than self-benefit appeal message. ANOVA results showed that under nonscarcity condition, other-benefit appeal message ($M = 5.44$, $SD = 1.28$) generated more sympathy than self-benefit appeal message ($M = 5.01$, $SD = 1.63$) in a marginal significant level, $F(1, 308) = 2.91$, $p = .089$, $\eta_p^2 = .009$. However, benefit appeal had a significant main effect on sympathy, $F(1, 308) = 4.74$, $p = .030$, $\eta_p^2 = .015$. Other-benefit appeal message ($M = 5.42$, $SD = 1.41$) generated more sympathy than self-benefit appeal message ($M = 5.04$, $SD = 1.65$). Therefore, H1 was partially supported.

H2 and H4 proposed an interaction effect between benefit appeal and resource scarcity appeal messages. Results showed that there was no significant interaction effect between benefit appeal and scarcity appeal message in terms of attitudes of organ donation, $F(1, 308) = .26$, $p = .61$, $\eta_p^2 = .001$, and intentions of organ donation registration and promotion, $F(1, 308) = .17$, $p = .68$, $\eta_p^2 = .001$. Therefore, H2 and H4 were not supported.

To answer RQ 1 which type of message appeal – other-benefit or self-benefit appeal message will be more effective in affecting people's organ donation attitude and intention. ANOVA results showed that there was no significant main effect between benefit appeal and attitudes toward organ donation, $F(1,$

$308) = .59$, $p = .443$, $\eta_p^2 = .002$, intentions of organ donation registration and promotion, $F(1, 308) = .85$, $p = .358$, $\eta_p^2 = .003$. Therefore, disregarding resource scarcity, other-benefit and self-benefit appeal messages generate a similar level of attitude and intention of organ donation.

As for the main effect of resource scarcity on attitudes and intentions of organ donation, the ANOVA results showed that resource scarcity significantly influenced attitudes toward organ donation, $F(1, 308) = 4.33$, $p = .038$, $\eta_p^2 = .014$. Non-scarcity condition ($M = 5.63$, $SD = .94$) generated more positive attitudes toward organ donation than scarcity condition ($M = 5.40$, $SD = 1.02$). However, there was no significant main effect between resource scarcity condition and intentions of organ donation registration and promotion, $F(1, 308) = .45$, $p = .504$, $\eta_p^2 = .001$. H3 proposed that under nonscarcity condition, sympathy would mediate the interplay between benefit appeal message and scarcity appeal message regarding attitude and intention of organ donation. To examine the moderated mediation model of H3, Hayes' [53] PROCESS Model 8 was employed. Bootstrapping technique with 5000 resamples at 95% confidence interval was used to analyze the entire model using PROCESS Model 8. The results showed that sympathy had a significant influence on attitudes toward organ donation, $B = .24$, $SE = .03$, $p < .001$, and intentions of organ donation registration and promotion, $B = .50$, $SE = .04$, $p < .001$. However, under nonscarcity condition, sympathy did not significantly mediate the interplay between benefit appeal and attitudes toward organ donation, effect = .10, $SE = .06$, $BootCI = [-.01, .22]$, intentions of organ donation registration and promotion, effect = .21, $SE = .13$, $BootCI = [-.02, .48]$. Therefore, H3 was not supported.

However, Hayes' Process Model 4 showed that sympathy significantly mediated the relationship between benefit appeal and attitudes toward organ donation, effect = .10, $SE = .04$, $BootCI = [.01, .18]$, intentions of organ donation registration and promotion, effect = .18, $SE = .09$, $BootCI = [.02, .39]$. Furthermore, benefit appeal messages had a significant impact on the sympathy of organ donation, $B = .38$, $SE = .17$, $p = .03$, but there was no direct significant impact between benefit appeal and attitudes toward organ donation, Effect = $-.001$, $SE = .10$, $BootCI = [-.20, .20]$, intentions of organ donation registration and promotion, $B = -.05$, $SE = .12$, $BootCI = [-.29, .19]$. Therefore, sympathy completely mediated the relationship between benefit appeal message and attitudes toward organ donation and intentions of organ donation registration and promotion.

H5 asserted an interaction effect between resource scarcity and benefit appeal in terms of fear. ANOVA results showed that there was a partially significant interaction between scarcity appeal and benefit

appeal messages, $F(1, 308) = 3.57, p = .060, \eta_p^2 = .011$. Under scarcity condition, self-benefit appeal message ($M = 4.54, SD = 1.90$) generated more fear than other-benefit appeal message ($M = 4.06, SD = 2.03$). Under nonscarcity condition, other-benefit appeal message ($M = 4.54, SD = 2.05$) generated more fear than self-benefit appeal message ($M = 4.16, SD = 1.97$) (see Figure 2). Therefore, H5 was partially supported.

H6 suggested that under scarcity condition, fear would mediate the interplay between benefit and scarcity appeal message regarding attitude and intention of organ donation. To examine the moderated mediation model of H6, Hayes' [53] PROCESS Model 8 was employed. Bootstrapping technique with 5000 resamples at 95% confidence interval was used to analyze the entire model using PROCESS Model 8. The results showed that fear significantly impacted attitudes toward organ donation, $B = .06, SE = .03, p = .048$, intentions of organ donation registration and promotion, $B = .29, SE = .03, p < .001$. However, under scarcity condition, fear did not significantly mediate the interplay between benefit appeal and attitude toward organ donation, effect = .02, $SE = .02$, $BootCI = [-.02, .08]$, intention of organ donation registration and promotion, effect = .09, $SE = .19$, $BootCI = [-.29, .46]$. Therefore, H6 was not supported. In addition, a correlation matrix of all variables in this study can be found in Table 3.

Discussion

This study found that, without a reminder of resource scarcity, other-benefit appeal generated more sympathy than self-benefit appeal message. This finding indicates that, as a prosocial behavior, organ donation reflects more altruistic motivation than egoistic motivation. Furthermore, sympathy is positively

associated with attitudes and organ donation intentions. More sympathy can generate more positive attitudes and organ donation intentions. Although there was no significant impact between benefit appeal message and attitude and organ donation intentions, when sympathy acted as a mediator between benefit appeal and organ donation perceptions, benefit appeal positively influenced people's perceptions and willingness to donate organs. This complete mediation result suggests that, when sympathy is controlled, both other- and self-benefit appeal messages can positively influence people's attitudes and organ donation intentions via sympathy. This finding corresponds with previous findings [15,40]. This finding is also consistent with Cohen and Hoffner's [9] finding that empathic concern can predict organ donation willingness. Therefore, sympathy plays an important role in organ donation. The effect of benefit appeal message only works when sympathy is controlled.

The results of this study showed a significant main effect between scarcity appeal and attitude and organ donation intention. The nonscarcity condition generated more positive attitudes toward organ donation than the scarcity condition. That can be explained by how resource scarcity affects people. When resource scarcity is salient, it triggers people's competition mindsets, and they try to increase their own benefit. That may make people perceive organ donation as a way to decrease their own self-benefit, leading to less positive attitudes toward organ donation compared to other-benefit appeal messaging. Therefore, although resource scarcity can promote people's prosocial behavior in other scenarios, resource scarcity cannot motivate people to become more prosocial in the context of organ donation.

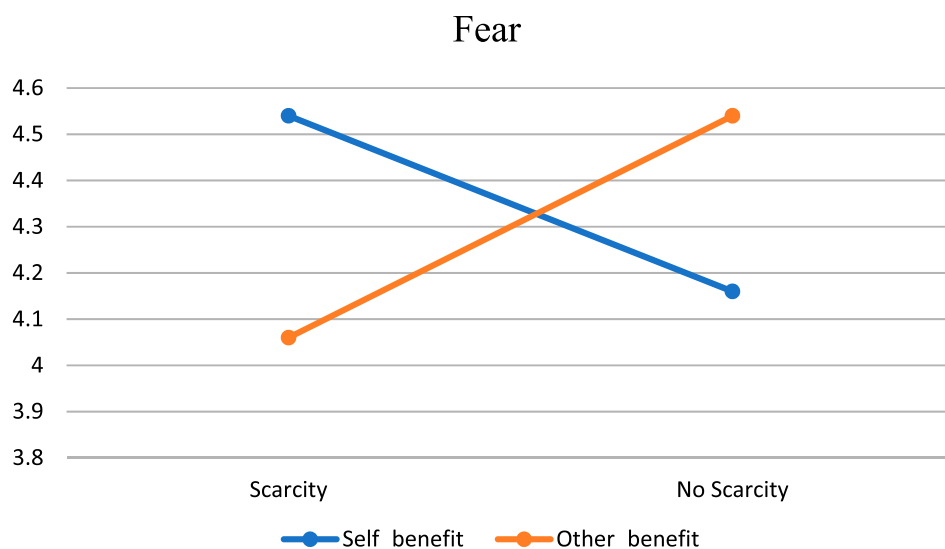


Figure 2. Interaction effect between resource scarcity and benefit appeal in terms of fear.

Table 3. Means, standard deviation, skewness, and Pearson correlation matrix for this study's variables.

	<i>M</i>	<i>SD</i>	Skewness	1	2	3	4	5	6
1. Scarcity condition	1.49	.50	.026	–					
2. Benefit appeal message	1.51	.50	–.052	.013	–				
3. Sympathy	5.23	1.55	–1.150	.000	–.123*	–			
4. Fear	4.33	1.99	–.446	–.015	.014	.332**	–		
5. Attitude toward organ donation	5.51	.99	–.453	.117*	.045	.376**	.109	–	
6. Intention of organ donation registration and promotion	5.13	1.30	–1.17	.039	.053	.584**	.443**	.489**	–

Note: Cronbach's alphas are shown in the diagonal.

* $p < 0.05$.

** $p < 0.01$

Theoretical implications

This study complements existing organ donation research by using an experiment to examine whether perceived self-benefit is more effective than other-benefit appeals in promoting organ donation and whether resource scarcity moderates the effect of benefit appeal in organ donation. Although the current study's results did not find that self-benefit appeal message was more effective than other-benefit appeal message, they complemented previous studies by discovering under what circumstances benefit appeals positively influence organ donation. The findings suggest sympathy, as an underlying mechanism, mediates the relationship between benefit appeal and attitude and organ donation intention. This study advances Cohen and Hoffner's [9] research by showing that sympathy is important for both other- and self-benefit appeal, and that the positive benefit appeal message on organ donation can be achieved by controlling sympathy.

Furthermore, a previous study also found that sympathy mediated the effect of narrative messaging on organ donation attitudes [40]. This study further revealed that sympathy not only can mediate the effects of benefit appeal message on attitudes toward organ donation but also exert an impact on benefit appeal regarding intentions of organ donation registration and promotion. With respect to the altruistic feature of organ donation, the effectiveness of sympathy corresponds to other-oriented altruistic motivation [54]. Therefore, this study complements the existing studies by showing that sympathy, as an integral factor in organ donation, can positively affect people's attitudes and willingness to be organ donors.

Similarly, this study found that fear had a positive impact on organ donation. The fear in organ donation includes 'ick' factors, which are related to a disgust response to organ donation, such as fear of body mutilation or of being 'defiled' after death, and jinx factors, which are related to fears and superstitions about the misfortune of organ donation, medical mistrust, and the fear that doctors will kill the patients to obtain their organs [7]. All these different types of fears reflect fear of death in organ donation. This study's findings not only correspond with Jain and Ellithorpe's [46] findings that fear of death positively influences attitudes toward organ donation but also expand

prior studies by showing that fear can promote intentions of organ donation registration and promotion. Hence, this study suggests that both sympathy and fear may change people's perceptions and organ donation intentions through different routes. Sympathy motivates people through altruism to reduce others' suffering, whereas fear motivates people through viewing organ donation behaviors as a value to help themselves cope with the fear of death.

As for resource scarcity, this study expands resource scarcity to the context of organ donation. This study found that nonresource scarcity generated more positive attitude toward organ donation than did the scarcity condition. Previous researchers have found that, when being generous brings self-benefits, prosocial behavior is motivated by self-interest [32]. This study identifies the circumstances in which resource scarcity may not be effective in promoting prosocial behavior. Because organ donation can remind people of their own death, resource scarcity may exacerbate their fear of death, and that may motivate them to suppress organ donation thoughts, rather than using organ donation as a defensive mechanism to cope with fear of death.

Practical implications

According to the findings, this study has several practical implications that can contribute to organ donation campaigns. First, the findings show that, because the nonscarcity condition generates more positive attitudes toward organ donation, when creating organ donation messages, practitioners should emphasize how organ donation can make a difference in the world rather than stress the severe shortages of transplantable organs. Second, the findings showed that sympathy induced more positive attitudes and organ donation intention, and that, under the nonscarcity condition, other-benefit appeal generated more sympathy. Because organ donation reflects more altruistic motivation, other-benefit appeal might be more effective than self-benefit appeal message. To induce more sympathy from an organ donation campaign, practitioners should focus on what other-oriented benefits can be achieved through organ donation.

Third, the findings showed that fear could also induce more positive attitudes and behavioral intentions toward organ donation, but fear generated by the interaction of a benefit appeal message and a scarcity appeal message does not significantly affect organ donation. Therefore, practitioners should be cautious in inducing fear in organ donation campaigns.

Limitations and directions for future study

There are several limitations to this study. This study used MTurk to collect data. Although MTurk samples are more representative than convenience-based samples – which, for example, might use college students ([55]) rather than the general U.S. population – MTurk sample populations tend to have lower average incomes and education levels and smaller percentages of non-White ethnicities, especially African Americans [56]. More representative data should be considered in future studies.

Another major limitation is that the current study used a single-message design to manipulate resource scarcity, which limits its generalizability and ability to rule out a third variable effect in the message. This study manipulated the scarcity message as ‘only 3 in 1000 are eligible to be donors.’ Future researchers could manipulate the scarcity message by emphasizing the shortage of transplantable organs compared to those on the national waiting list. Hence, future studies should incorporate more messages to improve the generalizability of the findings.

In addition to the single-message design, there is some potential confounding information in the resource scarcity condition. Other than scarce related information, the scarcity condition also included other, nonscarcity related information (e.g. ‘various diseases can cause organ failures and organs are nonrenewable ... approximately 1 in 3 adults with diabetes may have chronic kidney disease. If kidney damage is severe, a kidney transplant is needed.’) These pieces of information may contaminate the purity of the scarce information condition and taint people’s perceptions of the scarcity condition. Future studies should mainly concentrate on scarce related information to avoid these confounding factors.

Furthermore, inconsistent message length is one more limitation. Compared to the nonscarcity condition, the scarcity condition included both scarce information and benefit appeal message. Participants who were exposed to the scarcity condition read a longer message than those in the nonscarcity condition. Future studies could also cover some nonscarce or neutral information in the nonscarcity condition to maintain the same length of the message.

Another limitation of this study is the screening question ‘Are you an organ donor?’ at the beginning of the questionnaire. This screening question may

induce demand effects from participants. ‘Experimenter demand effects refer to changes in behavior by experimental subjects due to cues about what constitutes appropriate behavior (behavior ‘demanded’ from them)’ ([57], p. 75). In future studies, to avoid the screening question-caused demand effects, a field experiment could be conducted to examine the interplay effect of emotion and perceived similarity.

Other limitations of this study include participants’ recruitment, outdated measurements, and a relatively small effect size of significant findings. For participants’ recruitment, this study mainly recruited non-organ donors. As the general population consists of both registered and non-organ donors, only recruiting non-organ donors limits the generalizability of the findings to registered organ donors. This study revealed that non-organ donors could be persuaded by two routes under perceived benefits of organ donation. One route is via sympathy triggered altruism, and the other route is via considering organ donation registration as a coping mechanism to deal with fear of death. Without including registered organ donors restricts us from understanding if registered organ donors depend on the similar routes as non-organ donors to renew their registration status. Hence, future studies should recruit both registered and non-organ donors to discover the persuasive routes of noncognitive factors of organ donation. Furthermore, a comprehensive sampling frame will also expand the generalizability of the findings to a broader population. As for the outdated measurements, this study adopted the attitude toward organ donation and intention to sign as an organ donor from Feeley and Servoss [49] study. As there are newer scales for attitudes and intentions of organ donation (e.g. [58]), future studies should adopt more updated scales to measure people’s attitudes and intentions of organ donation registration. Moreover, as the significant findings of this study indicated a relatively small effect size, which is less than 2%, future replication is needed to validate the significant findings.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Ethical approval statement

This project received approval from Institutional Review Board of TAMUCC (IRB ID: TAMU-CC-IRB-2020-02-023).

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Appendix

The manipulated other-benefit appeal message is:

‘Donating your organs, you can save up to 8 people. You will help people see the world, hug their families and fulfill their dreams. You will provide chances for others being cured. You give people hope of survival. You will create endless possibilities for various people. You will give people strength to reclaim their lives. Your donated organs will keep another living. Your donation will make a contribution to society and humanity’.

The manipulated self-benefit appeal message is:

‘Donating your organs not only allows part of you to survive after death but also adds extra meaning to life. You will be appreciated and respected by people you saved. Your family and friends may be also saved by your donation. You leave a positive legacy for family and friends. Your family and friends will feel proud of you and consider you as a role model. Your will be admired as a person whoever saves one life, saves the world entire’.

The manipulated scarcity appeal message is: ‘Various diseases can cause organ failures and organs are nonrenewable. Take kidney for example, approximately 1 in 3 adults with diabetes may have chronic kidney disease. If kidney damage is severe, a kidney transplant is needed. However, only 3 in 1,000 people die in a way that allows for organ donation. It seems that everyone may face the crisis of organ scarcity’.