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Anger, frustration, boredom and the Department of Motor Vehicles: Can negative emotions impede organ donor registration?

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ABSTRACT

Rationale: The IIFF Model (Information, Immediate and Complete Registration Mechanism, Focused Engagement, Favorable Activation) offers a checklist of considerations for interventions seeking to influence organ donor registration behavior. One aspect of the model, favorable activation, recommends considering the emotional and motivational state of a potential donor registrant. Given that most donor registrations occur at the Department of Motor Vehicles (DMV), we considered whether emotions experienced while at the DMV could influence registration rates.
Objective: The current research effort investigated the emotions people experience while visiting the DMV, explored whether these emotions are associated with donor registration intentions, and experimentally assessed whether DMV experiences influence donor registration.
Methods: Three studies were conducted through Amazon's Mechanical Turk. In Study 1, we randomly assigned participants to either recall a prior DMV experience or to a comparison condition. Emotions associated with the recalled experiences were the dependent variable. Study 2 assessed the correlations between nine different emotions and donor registration intentions. Study 3 randomly assigned participants to recall a prior frustrating DMV experience or to a comparison condition. Intention to register to donate was the dependent variable.
Results: Study 1 found that recalling a prior DMV experience was associated with more negative and less positive emotions than the comparison condition. Study 2 found that increased levels of negative emotion could be problematic, as negative emotions were associated with decreased donor intentions. Study 3 found that recalling a frustrating DMV experience resulted in significantly lower intentions to register as an organ donor (vs. a control condition).
Conclusion: Although not all DMV experiences are negative, these data indicated a relationship between the DMV and negative emotions; an association between negative emotions and lower donor registration intentions; and, a causal relationship between negative DMV experiences and decreased registration intentions.

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In the United States, organ donor registration typically occurs at the Department of Motor Vehicles (DMV). As Rodrigue et al. (2014) noted, "The motor vehicle (MV) office increasingly has become an important venue for delivering organ donation messaging. In all 50 states, the organ donation question is required to be asked at the time of a driver's license transaction" (p. 1184). Accordingly, interventions seeking to increase organ donor registration rates have frequently targeted people at the DMV (e.g., Degenholtz et al., 2015). For example, Harrison et al. (2011) used DMV point-of-decision materials (e.g., footprint stickers, posters, and clerk cards), which complemented media-based efforts, with the goal of increasing DMV donor registration rates. In addition to targeting DMV patrons with point-of-decision materials, donor registration efforts have also taken the approach of training DMV clerks (e.g., Harrison et al., 2008; Rodrigue et al., 2012) or showing videos to DMV customers (Thornton et al., 2012). The success of these early efforts has been followed by additional DMV-based interventions. In one study, Degenholtz et al. (2015) implemented a web-based training program for DMV staff—the result of which was an

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increase in donor registration rates at the DMV. Based on these findings, it is clear that successfully increasing donor registration through DMV interventions is possible. Our goal in the current studies is to consider whether the moods people experience when visiting the DMV, something not typically taken into consideration, could affect their likelihood of registering as organ donors.

To guide the current investigation, we used the IIFF Model (Information, Immediate and Complete Registration Mechanism, Focused Engagement, Favorable Activation; Siegel et al., 2010a; 2010b), because it offers a lens for understanding the DMV's potential for successfully increasing donor registrations, and also the ways in which negative experiences at the DMV might affect donor registration intentions. The IIFF Model assumes that motivation to register as an organ donor is low for most people because they have limited vested interest in doing so, and because they are highly ambivalent (i.e., hold both positive and negative attitudes) about registering. These low levels of motivation minimize the likelihood that even people with positive attitudes toward organ donation will proactively seek to register. With the goal of counteracting this limited motivation, the IIFF Model proposes four behavioral supports which, if simultaneously present, maximize the likelihood that people with positive attitudes toward donor registration who have yet to register (i.e., passive positives) will act on their inclinations to do so: 1) an immediate and complete registration opportunity (ICRO; e.g., a means to start and complete the registration process as soon as the decision to register is made); 2) information (e.g., proactively providing information about topics such as eligibility); 3) focused engagement (i.e., creating a context where potential donors will actively consider whether to register as an organ donor); and 4) favorable activation (i.e., peoples' salient thoughts occurring as a result of their psychological state). Prior qualitative, quasi-experimental, and experimental studies indicate that the simultaneous presence of all four components of the IIFF Model can increase donor registration rates among passive positives (e.g., Alvaro et al., 2011; Salim et al., 2014; Siegel et al., 2015, in press).

Many DMVs meet, or have the potential to meet, three of the IIFF's four criteria (i.e., ICRO, information, focused engagement). Satisfying the ICRO requirement, customers have the potential to start and complete the registration process at the DMV. Further, the common need for customers to wait at some point during their visit offers a context where information can be provided. The need for focused engagement can be met as a result of license forms including a question about donation, and is likely to be further enhanced if clerks inquire about donor registration. Considering these three components, it is easy to see why DMVs are such a desirable locale for donor registration efforts. However, according to the IIFF Model, rates are maximized when all four components of the model are met.

The one aspect of the model that DMVs might not always meet is favorable activation—put simply, people might not be engulfed with positive affect when visiting the DMV. This sentiment is in line with numerous news articles indicating that frustration is a common emotion at the DMV (e.g., Aratani, 2014). As noted in a Washington Post article, "departments of motor vehicles have never enjoyed stellar reputations for customer service" (Aratani, 2014). Indeed, a comment from a focus group (Siegel et al., 2010b) inspired the current set of studies: "I don't care about how positive an attitude you have, most of the time when you are at the DMV, it's not really a positive experience and those things are kind of equated. Anything associated with the DMV automatically has a negative connotation."

If negative emotions are induced at the DMV, these negative experiences could be problematic, as multiple studies have indicated that people's emotional experience influences prosocial behaviors (e.g., Isen, 2001), including organ donor registration

(Rocheleau, 2013; Siegel et al., 2015). Of course, not every experience at the DMV will be negative. For example, one customer wrote to the *LA Times* to express "I was amazed and pleasantly surprised to discover that at each window I was greeted in a friendly and efficient manner" (Pressman, 2001). The DMV is also the context where people receive their first driver's license, or where they may have an unexpectedly efficient visit due to new systems designed to reduce wait times. As such, discovering the range of emotions induced during DMV visits, and how people's emotional states influence registration decisions could further the field's understanding of registration behavior in a context where registration is likely to occur.

1. The current studies

If the DMV is indeed a context associated with negative emotions, it represents both a challenge and an opportunity for scholars and practitioners seeking to maximize donor registration rates. Using the IIFF Model as a guide, the goal of the current set of studies was to assess the valence of the emotions that people experience when visiting the DMV, and to determine how these emotions influence their willingness to register as organ donors. The first study investigated the general valence of the emotions that people experience at the DMV. The second study assessed whether the emotions people were feeling were associated with their intentions to register as organ donors. Finally, we investigated whether people randomly assigned to recall a prior negative DMV experience report lower intentions to register as a donor than those assigned to write about their current day. To be sure, the goal of the current studies was not to examine the emotions associated with organ donation itself (e.g., fear and anxiety associated with death and signing an organ donor card; Albright et al., 2005), but rather to determine how the DMV might influence people's emotions and how these emotions affect their intentions to register as organ donors.

2. Study 1a

The goal of the first study was to assess whether visits to the DMV are likely to arouse negative emotions. If the associations between the DMV and negative emotions were only folklore, further investigations in this regard would be relatively futile. To begin our examination, we randomly assigned participants to describe either a prior experience at the DMV or their current day. Participants were then asked to report their feelings at the time.

3. Method

3.1. Design, participants, and procedures

Data were collected in June 2014 via Amazon's Mechanical Turk (MTurk), an online crowdsourcing tool (Buhrmester et al., 2011). Claremont Graduate University's Institutional Review Board reviewed all procedures, for all studies. We recruited both registered and non-registered organ donors; however, we only analyzed non-donors for the current study. A total of 103 participants were included in the final sample, with no missing data observed; see Table 1 for sample characteristics. We randomly assigned participants to describe a prior DMV experience or their current day. After the manipulation, participants completed a posttest with measures of emotions and demographics.

3.2. Experimental manipulations

Participants in the DMV condition thought about and described their most recent experience at the DMV. We asked participants to

Table 1
Demographics of participants.

	Study 1a	Study 1b	Study 2	Study 3
N	103	79	113	163
M_{age}	36.48	34.92	30.82	37.48
SD	13.60	12.42	10.31	13.02
Age range	18–73	19–65	18–60	18–72
% Men	64.10	70.90	67.30	54.00
% Women	35.90	29.10	32.70	46.00
% Ethnic breakdown				
Caucasian	68.90	63.30	69.90	73.00
Asian	11.70	11.40	16.80	12.30
African American	12.60	17.70	5.30	8.00
Hispanic/Latino	5.80	7.60	7.10	3.70
Other	1.00	.00	.90	3.00

think about their DMV experience and whether it was enjoyable or frustrating. Then participants were asked to write about the experience in as much detail as possible. Previous scholarship offers evidence of the validity of autobiographical memory tasks as a means of mood induction (e.g., D'Mello and Mills, 2014).

Participants in the comparison condition were asked to write about their current day, including what they did, how the overall experience was, and whether they were having a good day or bad day. They were then asked to write in as much detail as possible how they "feel right now" and why they "feel that way."

3.3. Posttest measures

Participants responded to an array of emotion measures. Participants who were assigned to the DMV condition were asked how they felt during that experience, whereas participants assigned to the control condition were asked how they were currently feeling. Aside from the widely used Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) to measure general positive and negative affect, respondents filled out multiple three-item measures to assess the degree to which they felt several discrete negative and positive emotions: anger, boredom, courage, empathy, elevation, frustration, gratitude, happiness, and respect.

PANAS. We measured respondents' affect with the PANAS (Watson et al., 1988). Participants rated 10 items representing positive affect and 10 items representing negative affect on a 1 (not at all) to 7 (extremely) scale based on their current feelings. Sample items from both subscales (positive and negative) included: Interested, Distressed, Excited, and Upset. The PANAS is a widely used scale that has been consistently validated (e.g., Allan et al., 2015). Cronbach's alpha values for both 10-item mood scales typically range from .83 to .90 (Allan et al., 2015; Watson et al., 1988); in the current study the scores ranged from .90 to .93.

Discrete emotions. Previous scholars have used three-item measures to assess the degree to which participants currently feel discrete emotions (e.g., Algoe and Haidt, 2009; Siegel et al., 2014; Thomson and Siegel, 2013). When available, we selected items that had been previously used. For example, we used the Gratitude Adjective Checklist (GAC; McCullough et al., 2002), which asks participants to describe how strongly they were currently feeling "grateful," "thankful," and "appreciative," to assess gratitude. If previously used measures were not available, a thesaurus and a dictionary were utilized. Participants rated all items on a scale of 1 (not at all) to 7 (very much). The items used to measure each emotion were: anger (angry, enraged, mad; $\alpha = .94$), boredom (bored, disinterested, indifferent; $\alpha = .78$), courage (bold, brave, fearless; $\alpha = .88$), elevation (inspired, moved, uplifted; $\alpha = .91$), empathy (compassionate, concerned, tender; $\alpha = .78$), frustration (annoyed, irritated, frustrated; $\alpha = .96$), gratitude (appreciative,

grateful, thankful; $\alpha = .96$), happiness (cheerful, joyful, happy; $\alpha = .96$), and respect (appreciated, respected, valued; $\alpha = .89$).

Demographics. Data regarding gender, age, donor status, and ethnicity were collected at the end of the survey.

4. Results

Initially, 188 participants were recruited for Study 1a. Prior to analyzing the data, participants were removed from the dataset if they were registered as an organ donor ($n = 75$) or were unsure whether they were registered as an organ donor ($n = 9$). We also conducted multivariate outlier screening according to the method described by Tabachnick and Fidell (2007). Although one multivariate outlier was excluded from the analysis, leaving a final sample size of 103, the pattern of results remained the same when this outlier was included in analysis.

We conducted a multivariate analysis of variance (MANOVA) to test the effect of condition (DMV or current day) on negative and positive emotions. Age and sex were also tested as covariates, but both were nonsignificant and the pattern of results remained the same whether or not they were considered. Thus, to ease interpretation, covariates were not included in the reported analyses. Across all emotion measures, there were significant differences between participants who reflected on their last time at the DMV and those who reflected on the events of the current day. Specifically, participants who recalled their time at the DMV reported significantly higher levels of negative emotions (anger, boredom, and frustration) and significantly lower levels of positive emotions (courage, elevation, empathy, gratitude, happiness, and respect) than those reflecting on their current day (see Table 2 for tests of significance and effect sizes). There were also differences in general positive and negative affect as measured by the PANAS with those in the DMV condition reporting on average significantly more negative affect and significantly less positive affect than those in the current day condition.

5. Discussion

Participants reported feeling increased levels of negative affect and reduced levels of positive affect when contemplating their prior DMV visit versus their current day. Additionally, the present study went beyond general affect and assessed discrete positive and negative emotions, uncovering the same pattern of results. Participants in the DMV condition felt lower levels of elevation, gratitude, empathy, respect, courage, and happiness, as well as higher levels of boredom, anger, and frustration than those in the control condition.

Table 2
Study 1a: Tests of significance between DMV and control (Today) conditions.

Dependent measure	DMV M (SE)	Today M (SE)	F	p	η^2
Anger	3.05 (.22)	1.30 (.20)	35.36	<.001	.26
Boredom	3.28 (.22)	2.14 (.20)	14.88	<.001	.13
Courage	2.33 (.24)	3.44 (.22)	11.84	<.001	.10
Elevation	2.09 (.26)	3.18 (.23)	9.95	.002	.09
Empathy	2.20 (.23)	3.20 (.21)	10.39	.002	.09
Frustration	3.91 (.27)	1.62 (.24)	40.84	<.001	.29
Gratitude	2.70 (.30)	4.31 (.27)	15.96	<.001	.14
Happiness	2.39 (.28)	3.98 (.25)	18.04	<.001	.15
Respect	2.42 (.26)	3.66 (.23)	12.76	<.001	.11
Positive Affect	3.01 (.21)	3.97 (.19)	11.56	<.001	.10
Negative Affect	2.37 (.17)	1.70 (.15)	8.91	.004	.08

Note: All tests had one degree of freedom in the numerator and 101 in the denominator.

6. Study 1b

One limitation of Study 1a was a possible floor effect due to the majority of respondents only having minimal levels of the emotions for which we inquired. We conducted Study 1b to overcome the floor effect by changing the response set such that participants' responses to the discrete emotion items were measured using 100-point slider scales rather than seven-point Likert scales.

7. Method

7.1. Design, participants, and procedures

As with Study 1a, all possible workers from MTurk were recruited, but we only included non-registered organ donors for the analysis. Data were collected in September of 2014. Similar to Study 1a, we randomly assigned participants to a DMV group or a group that thought about the current day. Following the manipulation, participants completed posttest measures, which used 100-point slider scales rather than seven-point radio buttons to address the possible floor effects in Study 1a. A total of 79 participants were included in the final sample, with no missing data observed (see Table 1 for sample demographics).

7.2. Experimental manipulations

We used the same experimental manipulations in Study 1b as in Study 1a (i.e., recalling a DMV experience or reporting how their day was going).

7.3. Posttest measures

Discrete emotions. To reduce the likelihood of the possible floor effect in Study 1a, each discrete emotion was measured by one item on a 100-point slider. We used single item measures because the 100-point slider scales tend to take longer to respond to, so we feared that three items per emotion would induce respondent fatigue. The emotions measured were *angry, bored, courageous, elevated, empathetic, frustrated, grateful, happy,* and *respected*. The item for the Today condition was "How (emotion) do you feel right now?" and for the DMV condition was "How (emotion) did you feel the last time you were at the DMV?" All items were rated on a slider of 1—100 from *not at all (emotion)* to *very (emotion)*.

Attention checks. Two attention checks were placed throughout the survey to make sure that participants were paying attention to the survey. These two items were "Please click neutral for this item" and "Please click strongly agree for this item." Participants were removed from study if they did not correctly answer both items.

Demographics. As in Study 1a, gender, age, donor status, and ethnicity were measured.

8. Results

Initially, 206 participants were recruited for Study 1b. Prior to analyzing the data, participants were removed from the dataset because: They failed an attention check ($n = 11$), were registered as an organ donor ($n = 113$), or were unsure whether they were registered as an organ donor ($n = 6$). Seven participants fell into multiple categories, resulting in 123 participants removed for failing attention checks or donor status. As in Study 1a, we conducted multivariate outlier screening, which resulted in the exclusion of four multivariate outliers from the analysis. Although these four multivariate outliers were excluded from the analysis,

leaving a final sample size of 79, the pattern of results remained the same when these outliers were included.

We conducted a MANCOVA to test the effect of condition (i.e., DMV vs. current day) on negative and positive emotions. As with Study 1a, age and sex were tested as covariates, but both were nonsignificant and the pattern of results remained the same whether or not they were considered. Thus, to ease interpretation, covariates were not included in the reported analyses. There were significant differences between participants who reflected on their last time at the DMV and those who reflected on the events of the current day across several emotion measures. On average, participants who reflected on their time at the DMV reported significantly lower levels of elevation, gratitude, and happiness, and significantly higher levels of boredom than those who reflected on the events of the current day (see Table 3 for tests of significance and effect sizes). No significant differences were detected between groups on anger, courage, or respect.

9. Discussion

Although not identical, the results of the current study were similar to Study 1a. Specifically, participants who reflected on their prior DMV experience, as opposed to their current day, reported experiencing lower levels of elevation, gratitude, happiness, as well as higher levels of boredom. Further, participants in the DMV condition displayed marginally significantly less empathy and greater frustration than those in the control condition. Together, Studies 1a and 1b offered evidence that people at the DMV likely experience a greater intensity of negative emotions, and a reduced intensity of positive emotions, relative to the emotions they typically experience on an average day.

10. Study 2

Study 1 indicated an overall relationship between visiting the DMV and a reduction in positive emotions and an increase in negative ones. Study 2 investigated whether this effect should be a reason for concern—that is, whether there is an association between emotions experienced at the DMV and donor registration intentions. Even though prior studies have indicated a relationship between happiness and donor registration intentions (Rodrigue et al., 2014), as well as a causal relationship between increased levels of elevation and greater intentions to register as organ donors (Siegel et al., 2015), the relationship between discrete negative emotions and donor registration behavior has rarely been investigated (e.g., Weber et al., 2006).

Table 3
Study 1b: Tests of significance between DMV and control (Today) conditions.

Dependent measure	DMV M (SE)	Today M (SE)	F	p	η^2
Anger	37.50 (5.54)	27.51 (5.90)	1.52	.221	.02
Boredom	57.00 (5.10)	30.49 (5.44)	12.65	<.001	.14
Courage	39.17 (4.89)	46.00 (5.21)	.92	.342	.01
Elevation	24.50 (4.41)	49.76 (4.70)	15.34	<.001	.17
Empathy	35.86 (4.39)	48.62 (4.68)	3.96	.050	.05
Frustration	46.14 (5.70)	30.68 (6.08)	3.44	.067	.04
Gratitude	45.83 (4.98)	65.03 (5.30)	6.97	.010	.08
Happiness	41.81 (4.68)	64.03 (4.99)	10.54	.002	.12
Respect	49.10 (4.86)	51.11 (5.18)	.08	.778	<.01

Note: All tests had one degree of freedom in the numerator and 77 in the denominator.

11. Method

11.1. Design, participants, and procedures

As with Study 1a and Study 1b, we recruited workers from MTurk. The recruitment script informed workers that only those not currently registered as organ donors should participate. Data were collected in December, 2014. After giving their consent, participants were asked to "write about the specific emotions you are currently experiencing and why you think you are feeling this way." They were then randomly assigned to respond to emotion items with one of two response sets—one with seven-point Likert scales and the other with 100-point slider scales. Participants were then asked about their intentions to register as organ donors, followed by demographics. A total of 113 participants were included in the final sample, with no missing data observed (see Table 1 for sample demographics).

11.2. Measures

Discrete emotions. Participants were randomly assigned to either receive the three-item seven-point Likert scales used in Study 1a or the one-item 100-point slider scales used in Study 1b. The order of the items was randomized for all participants.

Intentions to register as an organ donor. A three-item intention scale was modified from Siegel et al., (2014) measure ($\alpha = .98$). Example items from this scale are "I intend on registering to be an organ donor" and "At some point, it is likely that I will register to become an organ donor." Participants rated items on a 100-point scale (*strongly disagree* to *strongly agree*). Higher scores indicated stronger intentions of becoming an organ donor.

Attention checks. Study 2 included the same set of attention checks used in Study 1b.

Demographics. As in Studies 1a and Study 1b, gender, age, donor status, and ethnicity were measured.

12. Results

Initially, 235 participants were recruited. Prior to analyzing the data, participants were removed for failing an attention check ($n = 19$) or because they were registered or unsure if they were registered as organ donors ($n = 10$). Two participants were removed for failing to meet more than one criterion, resulting in a total of 27 participants removed for either failing an attention check or donor status. As in Studies 1a and 1b, data were screened for departures from normality and outliers. Similar to the floor effects in Study 1a, we identified problems with normality when seven-point Likert scales were used to measure emotions. These departures from normality were so extreme (e.g., more than 50% of participants reported the lowest possible level of anger) that data from those who were assigned to use seven-point scales were not further analyzed, and only results from those using the 100-point slider scales are reported. Removing these participants left a final sample of 113 people, all of whom had been randomly assigned to use 100-point slider scales to measure emotions. Distributions were relatively normal, and therefore left untransformed. None of the demographic variables had significant effects on the relationships between intentions to register and emotions, and the pattern of results remained the same whether or not they were considered. Thus, to ease interpretation, covariates were not included in the reported analyses.

Bivariate correlations were conducted to examine the relationships between intentions to register as an organ donor and each emotion. Analyses revealed significantly positive correlations between intentions to register and elevation, gratitude, empathy, and

happiness; and, boredom and frustration were significantly negatively associated with intentions. (see Table 4 for correlation coefficients and tests of significance). Registration intentions were not significantly related to respect, courage, or anger.

13. Discussion

The results of Study 2 indicated an association between higher levels of negative emotions such as boredom and frustration—two emotions people often experience at the DMV—and lower levels of donor registration intentions. Further, intentions to register as an organ donor were significantly associated with the positive emotions of gratitude, elevation, empathy, and happiness. Unfortunately, the results of Study 1 indicated that some positive emotions are likely to decrease as a result of visiting the DMV.

14. Study 3

Study 1 indicated that people who recalled a prior DMV experience report feeling more negative, and less positive, emotions than those who recalled the emotions of their current day. Study 2 revealed that higher levels of donor registration intentions are negatively associated with negative emotions and positively associated with positive emotions. Together, these studies offered preliminary evidence that when people visit the DMV and have a negative experience, which appears to be a common occurrence, intentions to register as an organ donor decrease. Study 3 aimed to advance the evidence base beyond speculation by experimentally assessing whether having a frustrating experience at the DMV causes a decrease in donor registration intentions.

15. Method

15.1. Design, participants, and procedures

Data were collected via MTurk in November, 2015, using a slightly different procedure than Studies 1 and 2. Rather than collect donor and non-donors but discard the data of the donors (Study 1), or specifically recruit non-donors only (Study 2), we followed a recently proposed approach for collecting participants when the focus is on non-registered donors (Siegel et al., 2015). Specifically, we posted an MTurk survey that had no eligibility requirements regarding donor registration status. The survey asked participants various questions about donation such as attitudes, intentions, and their donor status. In addition, it assessed perceived donor eligibility with questions that determined if participants believed themselves to be too sick, too old, too young, or even eligible to be a donor. After this screener survey, the participants who qualified (i.e., non-registered organ donors and those who perceived themselves as eligible) were invited to participate in the main study.

Table 4
Study 2: Correlations with intentions to register.

	r	p
Angry	−.119	.106
Bored	−.215	.011
Courageous	.121	.100
Elevation	.244	.005
Empathy	.239	.005
Frustrated	−.175	.032
Gratitude	.229	.007
Happy	.170	.036
Respected	.078	.205

Note: $N = 113$; p values are 1-tailed.

After giving their consent, participants were randomly assigned to either a control group or a DMV group. Those in the control group were directed immediately to the posttest measures, while those in the DMV group read a vignette and reflected on their own frustrating DMV experiences. Participants then completed posttest measures of intentions to register as organ donors and demographics. A total of 163 participants were included in the final sample, with no missing data observed (see Table 1 for sample demographics). (The study also included a group assigned to receive an elevation induction or assigned to receive a combined DMV/elevation condition, but the emotion induction created for the current study failed to elicit the desired emotion of elevation and instead elicited forgiveness. As such, we dropped these two cells and do not discuss them further.)

15.2. Experimental manipulations

Participants assigned to the DMV condition received instructions that were similar, but not identical, to Studies 1a and 1b. We altered the manipulation to enhance its effects by adding a vignette about another person's frustrating DMV experience that participants read prior to recalling their own frustrating DMV experience. More specifically, participants who were randomly assigned to the DMV condition read a specific story about a person who went to the DMV to pay a fine for a parking ticket. The person was unable to pay for the ticket online, which was frustrating. Events were then mentioned where the story's character dealt with terrible service, long lines, and lost time. After participants read the DMV story, they were asked:

Now please think of an experience that was similar to this one. Have you ever had a frustrating and irritating DMV experience? Please describe what happened. How did you feel? Please describe your feelings as vividly as possible. If possible, please try to feel each emotion as you are describing it.

Participants who were assigned to the control group were immediately directed to posttest measures, and were simply given instructions that they would receive a series of items focused on their intentions to donate and that in the survey they would not actually be asked to register. People in the DMV condition were given similar instructions after they received the manipulation.

15.3. Posttest measures

Intentions to register as an organ donor. This measure consisted of the same three items used in Study 2. The only difference was that the measure was on a 100-point scale (strongly disagree to strongly agree; $\alpha = .99$).

Attention checks. Similar to Studies 1b and Study 2, Study 3 included a set of attention checks. In addition to the attention check from the prior studies, a third item was added. This item was "I am paying attention to these items." The response options were "false" or "true." Those who indicated false were removed from final analyses.

Demographics. Gender, age, donor status, and ethnicity were again measured.

16. Results

Initially, 183 participants were recruited for Study 3. Prior to analyzing the data, 20 participants were removed because they: failed an attention check ($n = 8$), indicated that they were already registered as organ donors ($n = 5$), or were unsure if they were registered as organ donors ($n = 8$). One participant was removed for both failing an attention check and donor status, leaving a final sample of 163 participants. Intentions to register were examined

for outliers and departures from normality. As this variable was relatively normally distributed, no transformations were performed. Demographic factors were analyzed as potential covariates, but had no significant effect, and were thus removed from final analyses to ease interpretation.

A t-test was performed with intentions to register as an organ donor as the dependent variable, and condition (DMV vs. control) as the independent variable. Results indicated a significant effect of condition, $t(141.22) = 2.13$, $p = .04$, $d = .34$. Participants in the control condition ($M = 50.04$, $SD = 29.38$) had significantly greater donor registration intentions than those in the DMV condition ($M = 39.32$, $SD = 33.87$).

17. Discussion

The current study complemented Studies 1 and 2 by providing experimental evidence of the causal relationship between experiencing a frustrating DMV experience and a reduction in donor registration intentions. Specifically, participants asked to recall a frustrating DMV experience had significantly lower registration intentions than those in the control group.

18. General discussion

The DMV has been the location for several interventions designed to increase donor registration (Harrison et al., 2008). Often taking the form of clerk or customer education (Rodrigue et al., 2012), these efforts have been generally successful, resulting in an increase in the number of registered donors (e.g., Degenholtz et al., 2015). Inspired by a negative comment about the DMV during a focus group (Siegel et al., 2010b), the current set of studies considered the DMV context through the lens of the IIFF Model. The utility of the model is that it provides four behavioral supports necessary for maximizing donor registration rates, particularly among people positively inclined toward registrations. The DMV context typically meets, or has the potential to meet three of the four IIFF requirements (i.e., an ICRO, information, focused engagement); in contrast, the requirement of favorable activation is a potential challenge, as the DMV has the potential to arouse negative emotions such as frustration, boredom, and anger (e.g., Aratani, 2014). We conducted three studies to assess whether people tend to feel relatively negative emotions in relation to their DMV experience, whether these emotions are negatively associated with donor registration intentions, and whether having a negative experience at the DMV could lead to a reduction in donor registration intentions.

In Study 1a, compared to participants recalling their current day, those who reflected on a prior DMV experience reported lower levels of general positive affect and discrete positive emotions of gratitude, empathy, respect, courage, and happiness. Further, participants in the DMV group reported higher levels of general negative affect and discrete negative emotions of boredom, anger, and frustration than those in the control group. Due to the possible floor effects of Study 1a, we conducted Study 1b using 100-point slider scales to measure emotions rather than seven-point radio buttons. Once again, there were significant differences in the emotions reported based on whether participants recalled a prior DMV experience or their current day. Participants recalling a prior DMV experience felt less elevated, grateful, and happy at the time in comparison to those reporting on their current emotional state. Additionally, participants assigned to the DMV condition reported feeling significantly higher levels of boredom and marginally significantly higher levels of frustration. Given that Study 1 indicated the DMV experiences are commonly associated with a general increase in negative emotions and a decrease in positive ones,

we conducted Study 2 to assess whether feeling negative and positive emotions were associated with changes in registration intentions. Results of Study 2 indicated that positive emotions were positively associated with intentions to register, while negative emotions were negatively associated with donor registration intentions. This result aligned with the findings of Rodrigue et al. (2014), who reported an association between happiness and willingness to register.

Together, Studies 1 and 2 offer reason to suspect that being at the DMV could cause negative feelings and, subsequently, such negative feelings can lead to a reduction in donor registration intentions. However, these studies did not explicitly test whether having a negative DMV experience could lead to a reduction in donor registration intentions. As such, we conducted Study 3, which compared a group that was asked to describe a prior frustrating experience at the DMV to a control group, with organ donation registration intentions serving as the outcome measure. Results indicated that compared to a control group, recalling a negative DMV experience caused people's donor registration intentions to decrease. These data are in line with recent findings from Siegel et al. (2015), who randomly assigned participants to an elevation induction condition or a control condition. These authors found that participants experiencing the discrete positive emotion of elevation reported significantly higher intentions to register than control participants. The results of this prior study, plus the current investigation provide a clear picture that emotional states of potential donors can cause registration intentions to rise or fall. The current research endeavor is unique in that it shows how emotions experienced at the DMV can curtail donor registration rates.

The current results also support the utility of the IIFF Model (Siegel et al., 2010a), which offers a checklist for considering how specific contexts can be adjusted to maximize donor registration rates. The IIFF Model's focus on the need for favorable activation was particularly useful for the current research, as it led us to consider whether the negative emotions at the DMV could hamper donor registration rates. Beyond highlighting the utility of the IIFF Model, the current set of studies will ideally lead to consideration of potential intervention approaches that focuses on influencing the emotions of people at the DMV to maximize favorable activation. Such an approach would build on past DMV-based efforts to further maximize donation registrations (e.g., Degenholtz et al., 2015; Rodrigue et al., 2014). Considering donor registration contexts through the lens of the IIFF Model was useful in that it drew our attention to favorable activation and the feelings that might be top of mind at the DMV. The current set of studies highlight contextual influences on donor registration behavior in general, and the utility of the IIFF Model in particular.

Strengths and limitations. There are numerous strengths to the current investigation, including its status as a rare research effort that considers how the DMV context influences emotions, and our use of multiple experiments. Other strengths include going beyond general affect and examining discrete emotions, as well as assessing a range of discrete emotions using two different response sets. One limitation is that we did not interview people currently at the DMV, but instead asked participants to recall their prior experiences. Even though autobiographic recall is an accepted experimental technique (e.g., D'Mello and Mills, 2014), follow-up studies conducted within the DMV are needed. A further limitation is the cross-sectional nature of Study 2. Longitudinal studies involving concurrent DMV experiences are a reasonable next step. Additional limitations include the limited diversity of the sample, particularly in regards to ethnicity, as well as a focus on intentions rather than behavior as an outcome measure.

Future directions. The current studies identified a component of the DMV experience that is ripe for future studies—namely, the boredom and frustration that sometimes accompanies a visit to the DMV. Ideally, the current studies will create awareness of the potential costly influence of a negative DMV experience on donor registration intentions. We are not suggesting donation scholars begin to examine how they can change the entire DMV system; rather, we hope to prompt research to consider how point-of-decision materials or similar promotional efforts within the DMV might work to overcome any emotional barriers that arise as a result of the context in which they are received. For example, a recent study indicates that inducing feelings of elevation (e.g., moral inspiration) causes an increase in donor registration intentions (Siegel et al., 2015). If promotional materials can infuse feelings of elevation among people visiting the DMV, it can possibly overcome the harm caused by any negative emotions associated with the visit.

19. Conclusion

The DMV is the context where the vast majority of organ donor registrations occur. In this regard, the donor practitioners owe much gratitude to DMVs. Wisely, organ donation scholars and practitioners have sought to maximize the likelihood of donor registration in this context through efforts such as training the DMV clerks and placing information about organ donation within the DMV. Guided by the IIFF Model, the current studies considered another facet of the DMV context that can influence donor registration rates—in particular, the emotions commonly experienced while people wait at the DMV and the influence of these emotions on donor registration decisions. Results of the current studies indicate that even though not everyone reports negative affect as a result of their DMV visits, there is an overall increase in negative affect among those recalling prior DMV experiences. The current studies further indicate that negative emotions are negatively associated with intentions to register as an organ donor, while positive emotions are positively associated with intentions. Finally, the current research effort indicates that recalling a negative DMV experience causes a decrease in donor registration intentions. It is crucial for future studies to examine means of overcoming the negative influence that a frustrating DMV visit can have on donor registration behavior.

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