

# Evaluation of a Rural Organ Donation Campaign Designed to Improve Health Promotion among Young Adults

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## Abstract

A health communication campaign to promote organ donation was conducted in partnership with Donate Life America at a rural university campus. Materials included posters, flyers, and postcards, along with personal contact. Participants included university students located at a rural university campus in a survey in a pre-post intervention during National Donate Life Month. Data from research about the campaign included the target audience who completed surveys prior to and after the campaign about attitude and intent towards donation. Likewise, after pre-post intervention of the campaign, reported rates for donor registration increased, and findings indicate that registration rates in this rural university campus are similar to baseline rates in other regions. Based on the population, additional health communication strategies should address disparate groups develop appropriately tailored interventions. Local community health campaigns may be effective in promoting donor registration and increasing communication and beneficial outcomes surrounding organ donation.

**Keywords:** organ donation campus campaign, community partnership, rural campaign

## 1. Introduction

### 1.1 Health Disparities and Campaigns

Health disparities in access, communication, and education to organ transplantation exist for areas lower in socioeconomic status, which are often in medically underserved or rural areas (Cicalese et al., 2016). Organ donation registration remains an issue in rural communities, particularly due to a lack of access to health care resources (Moore et al., 2014; Fahrenwald et al., 2013) and lower rates of health education (Gallo & Beckman, 2016; Autio & Deussen, 2016), which can impact knowledge of organ donation. Health communication campaign efforts contribute to reducing disparities by providing persuasive strategies that can influence individuals to take up a positive health behavior (Balamurugan, Rivera, Sutphin, & Campbell, 2007). Notably, the need for registered donors in rural areas is similar to urban and suburban areas (Axelrod et al., 2015), but due to the limited availability of education offered in many rural communities, tailored campaign efforts can provide greater potential for increased registration rates (Stefanone et al., 2012; Harrison et al., 2011; Morgan et al., 2010). Health promotion campaigns that promote donation consent have been moderately successful at improving donor registration, providing evidence that these strategies are worthwhile causes (Harrison et al., 2011; Aykas et al., 2015; Morgan et al., 2002; Feeley & Fruegler, 2015).

The goal of this community project was to implement a health campaign in partnership with a branch (redacted for review) of Donate Life America to improve university health communication about organ donation on a rural campus conducted during National Donate Life Month. While social scientific scholars are often interested in studying university students due to availability, rurally located residents help improve literacy and the education of their communities, and many go on to become opinion leaders that shape attitudes and behaviors of their local communities (Feeley, 2007). Moreover, they tend to be more inclined to become organ donors, as they are often open to new ideas (Feeley & Kruegler, 2015). Though university students have already been surveyed on health campaign experiences (Stefanone et al., 2012; Feeley et al., 2009; Smith et al., 2016), rurally located university students remain underserved in donor campaigns, despite the fact that the rural population represents roughly 20% of the US population (U.S. Census Bureau, 2018). As a result, health campaigns (Quick et al., 2015; Feeley, 2013) educating university students that strive to improve donation intent can instill positive beliefs and values that are further carried on in life.

### *1.2 Theory of Planned Behavior, Rural Communities and Organ Transplantation Needs*

The Theory of Planned Behavior (TPB; Ajzen, 1991) has been used in organ donation promotional efforts (Hyde & White, 2009). This is largely due to the linear structure these provide, with a clear set of factors that are successful in both explaining and predicting the outcome of well-designed campaign efforts. In planned behavior research, attitudes have consistently found to be a strong predictor of behaviors (Hagger et al., 2002; Park & Smith, 2007; Shepherd & O'Carroll, 2014). In a rural campaign, we would expect that as a result of exposure to a campaign, individuals with a positive or increased positive attitudes towards donation would be more likely to sign a donor card.

Prior research has shown that intentions are often predicted by attitudes and knowledge (Kopfman & Smith, 1996; Rumsey, Hurford, & Cole, 2003; Saub, Shapiro, & Radecki, 1998; Siegel, Alvaro, Lac, Crano, & Dominick, 2008). Notably, Weber et al. (2007) applied TPB by giving participants the opportunity to sign an organ donor card, finding that those who signed had more positive attitudes about donation and perceived donation as something their peers would encourage. Similarly, Feeley (2007) conducted an integrated review of literature of college students' knowledge, attitudes, and behaviors regarding organ donation. Findings showed that students lacked information and knowledge, but had positive attitudes towards donation. Previously successful campaigns have stressed the importance of communication strategies and media priming, such as Harrison et. al.(2011) in a three-pronged campaign that used mass media, point-of-decision, and interpersonal components in a campaign geared towards African Americans, which are disproportionately represented on the national wait list for organ transplantation. These tailored campaigns are necessary, particularly when providing communication efforts to rural or urban areas (Weeks, Lushkov, Nelson, & Wallace, 2006).

Rural communities have often struggled with many healthcare needs: the recruitment and retention of physicians, access and transportation to clinics, lower health literacy, insurance availability, and other socioeconomic factors (Cicalese et al., 2016). The Association of American Medical University's Center for Workforce Studies suggested that in the next decade, there will be a shortage of 45,000 primary care physicians, along with 46,000 surgeons and medical specialists. Disparities like these affect access to organ transplantation for rural areas, and for other populations therein, such as ethnic minorities and patients with lower socioeconomic statuses. While national programs have strived to ensure equal access to donated organs, healthcare barriers are often found in rural areas tend to contribute towards organ allocation policies (Axelrod et al., 2015). While it is difficult to change all of these factors, it is possible to increase communication about organ donation to improve registrants in communities where rates are lower. These research questions guided the study design:

RQ1: Will mass media and interpersonal organ donor campaign strategies increase attitudes and intent towards becoming an organ donor on rurally located university students?

RQ1a: What is the effect of mass media and interpersonal campaign strategies on a rural university student population towards intention to register as an organ donor?

## **2. Method**

The university Institutional Review Board approved the campaign and study associated with the project. A campaign was designed to influence the decision to become an organ donor, and the research team partnered with a branch of Donate Life America to conduct an organ donation campaign on a rural university campus, where that branch had not yet served. Several materials were used to disseminate messages. Materials included posters, postcards, flyers, banners, and personal contact on campus.

### *2.1 Donate Life Campaign*

The campaign was implemented on campus in April, to coincide with the Donate Life America National Donate Life Month. A large display table at the front of the student union was used to disseminate materials, and a banner was displayed at the forefront of a student union building during the month. This display ran for three days every week for the month of April, which included volunteer registrants and computers where participants could sign up to become a donor. Materials included the message "Organ Donation Saves Lives," including the university branding to aid in interpersonal conversation surrounding the campaign. This was the tag line of the campaign, used across the posters, postcards, and banners. Material design and development were based on Donate Life materials, and those directly shared by a regional branch, including "April is National Donate Life Month. Register to be an organ, eye and tissue donor and make LIFE possible." Message strategies were made to be consistent with national Donate Life America messages, while also incorporating a university tag line and colors to provide visibility and credence. To test the effectiveness of the campaign, a survey was conducted prior to the start of the campaign and after the campaign concluded.

### *2.2 Setting and Population*

All participants were students at a rural university located in the United States. One month prior to the start of the

campaign, a survey was distributed to students across three large, university-required classes via Qualtrics, which meant that students from freshmen through seniors would be represented throughout survey participation.

Pre and post campaign, students were recruited to participate in the survey. Three of nine courses were entered using a numeric randomizer; subsequently, instructors of those three courses were contacted and approval was gained to recruit students, who were given instructions with a link on how to participate in the online survey. Incentives for participation in the survey included a chance to receive a 1 of 5 \$25 Visa gift cards. Participants provided their name and had a unique ID assigned to their survey to be included with both sets.

### 2.3 Survey Design and Measurement

The survey included a series of demographic questions, yes/no responses on whether or not the individual was an organ donor, advertising awareness about organ donation, and intent questions relating to organ donation. The survey remained the same at pre/post intervention. Participants were asked to complete the survey at pre-intervention and post-intervention. To identify differences among groups, analysis of variance was used. Measures to assess attitude and intent were used as follows:

#### Attitudes towards organ donation

*Attitudes towards organ donation* were measured by using the Attitudes Toward Organ Donation Scale. Questions are scored on a six point Likert scale. Each question is scored separately with higher scores representing a higher likelihood of participating towards the intended action. The scale has been used in various studies (e.g., Morgan et al., 2001; Melnikov et al., 2017; Siegel et al., 2014), and is comprised of six items, such as: "I support the idea of organ donation for transplantation purposes," and "I view organ donation as a benefit to humanity." The mean of the scale for participants was 5.82 ( $SD= 1.37$ ). The reliability of the scale was high ( $\alpha= .91$ ).

#### Intention to register as an organ donor

The *intent to register as an organ donor* was measured by a 3-item intention scale (Siegel et al., 2014) that referenced previous intention measures on organ donation research, with higher scores representing higher intent to register as a donor. The three items included: "I intend on registering to be an organ donor," "The next opportunity I get, I plan to register to become an organ donor," and "It is likely that I will register to become an organ donor." Items were rated on a 7-point Likert scale, and the mean of the scale for participants was 5.32 ( $SD= 1.22$ ). Scores were reported for students who did not report being organ donors at pre-intervention.

Finally, participants were asked about campaign recall. This included asking about recall of viewing campaign materials and interacting with personal contact as part of the campaign strategies.

## 3. Results

Of the participants in the study, the average age of the students was 21.3 ( $SD= 1.63$ ). There were slightly more females (52.6%) than males (47.4%). The majority of students reported their ethnicity as Caucasian (82.1%), followed by Asian (5.2%), African American (5.1%), Native American (4.9%), Hispanic/Latino (2.0%), or undisclosed (0.7%). Students identified as being freshmen (20.9%), sophomores (48.8%), juniors (20.3%), or seniors (10.0%). The majority of participants reported living in a rural area (89.1%), with the rest reporting originating from a suburban or urban area (10.9%). Of the responding students, the majority (83.4%) reported that they lived either on-campus or in dormitories.

Of the 305 possible students enrolled in the three classes that participated in the survey, 221 students completed the survey pre-intervention and 220 students at post intervention. While 220 is the total number of students who took the survey, the results reported are for students ( $n=177$ ) who did not report being an organ donor at pre-intervention in order to see if a change in attitudes and intent occurred.

To address RQ1, the scale measuring attitudes towards organ donation had acceptable consistency (pre  $\alpha= .91$ , post  $\alpha= .90$ ). Participants' positive attitudes (221 at pre; 210 at post; non-donors included 177 at pre; 176 at post) increased significantly from pre ( $M= 5.94$ ,  $SD= 1.10$ ) to post-intervention ( $M= 6.22$ ,  $SD= 1.33$ ),  $F(1, 8.44) = 10.16$ ,  $P < .01$ ,  $\eta^2=31$ ).

Intention towards organ donation registration had acceptable consistency (pre  $\alpha= .92$ , post  $\alpha= .94$ ). Participants' intention to register as an organ donor (220 at pre; 220 at post; non-donors included 177 at pre; 176 at post) increased significantly from pre ( $M= 5.41$ ,  $SD= 1.38$ ) to post ( $M= 6.21$ ,  $SD= 1.44$ ),  $F(1, 70.40) = 35.39$ ,  $P < .01$ ,  $\eta^2=34$ ).

To address RQ1a, we compared the rates of participants in the study who were asked if they signed up to be an organ donor during the month of April. The number of participants who reported registration increased from pre-intervention (20.2%) to post-intervention (40.2%;  $n=70$ ). We asked participants were asked how often they had seen the campaign, and over fifty percent (58.4%) reported viewing materials at least one time. Over a third (38.4%) reported interacting with personal contact about organ donation that was available in the student union. This data suggests that the campaign

activities, combined with the on-site availability of materials and individuals to execute the organ donation awareness campaign, had an influence on student attitudes, knowledge, and intention to sign donor cards, and ultimately, behaviors on the topic of organ donation.

#### 4. Discussion

The data from this small rural campaign resulted in several outcomes that led to results that can be implemented in future health communication interventions. First, the data suggest that the campaign may have had some influence on the intent to register as a donor. The setting in which this campaign took place is within a state with somewhat lower rates of registrants in the country, as its donor designation rate is unreported, though its share of reported designated donors is roughly at 50% (Donate Life America Annual Update, 2018). Thus, developing campus-wide campaigns that promote communication and education of organ donation are beneficial steps towards reducing the gap in donors in geographically dispersed areas. Developing such campaigns can be effective at increasing registration and decreasing the disparity in donor registration by targeting young adults. At the same time, campaigns like this presented a challenge due to the costs associated with running the campaign. The results of this study provided some support that the effects of a grassroots campaign had a positive impact on the intention to sign up to become an organ donor. Larger sample sizes would be beneficial for future campaign efforts in regions where access to community outreach may be a challenge. A potential effect on the increased rates of organ donor registrants is that the campaign took place during National Donate Life month. Participants in the study may have been exposed to additional materials outside of the campaign that promoted organ donation during this time period.

Community partnerships are particularly helpful for increasing health communication strategies, such as state health departments, Donate Life, and other agencies that can enrich the quality and conversations that impact campaign efforts. Organizations like Donate Life add visibility to the campaign and potentially improve registration intent (e.g., TPB; Ajzen 1991). Notably, the data from the study demonstrated that the baseline level of donor registration (roughly 20%) in a rural university was similar to other samples in urban and suburban populations in the US (Feeley & Kruegler, 2015). These results are similar to findings from mass-mediated health campaigns, which indicate that campaigns produced positive behavior change (Anker et al., 2016). However, rurally-located patients with end-stage organ failure may face barriers to transplantation due to access to transplant centers, so dialogue that occurs about the willingness to become a donor may be influenced by these challenges (Axelrod et al., 2015; Office of Rural Health, 2012). Health communication campaigns can respond to these challenges, such as partnering with transplantation centers to provide additional communication channels. Advocacy based organizations like Donate Life should also be noted as potentially important partnerships, which offer campaign support and the potential for message recall.

It is notable that, while most participants in the study identified as Caucasian, roughly 5% of respondents self-identified as Native American students. This is unsurprising, given that the region is home to at least 5 neighboring tribes, representing an important community population in the state. Future campaigns can partner with priority populations to emphasize important cultural contexts in campaign design. For instance, scholars (Fahrenwald et al, 2013; Gallo & Beckman, 2016) have conducted health interventions with tribal universities on deceased donation and have noted the necessity for culturally-targeted campaigns on donation registration. Donation campaigns that partner with local cultural organizations may also lead to favorable outcomes since they can incorporate personal interconnectedness among the members of the given community. The success of previous donation campaigns tailored to various populations (Harrison et al., 2011) provides evidence of this.

##### 4.1 Limitations and Future Directions

The primary assessment of success in this campaign was via quantitative inquiry. For future efforts that address the effect of mass media and interpersonal campaign strategies on the intent to become an organ donor, qualitative inquiry via focus groups and interviews can yield crucial insight. A follow-up study that seeks to understand the nuances influencing organ donation beliefs and behaviors should also be conducted. In particular, in a future campaign that assesses TPB variables such as attitudes, knowledge, and intention among residents in a rural community would be beneficial—using a mixed methods approach of quantitative and qualitative inquiry, which can help serve as formative research.

The campaign by design was developed to serve residents within a rural campus, but there must be caution taken in generalizing the results to a broad demographic, or even those at other rural universities. Replications of this type of campaign with added measures can help, since this study examined attitudes and intent specifically towards organ donation. Additional measures should be included in future campaigns to develop a robust sense of organ donation willingness. For instance, attitudes and intent to resulted in similar findings, so examining additional factors (e.g., willingness to discuss donation, altruism, see Morgan & Miller, 2001) can provide useful insight for campaigns that might examine the interpersonal interactions that occur surrounding sensitive health topics, like organ donation. For future campaigns that address the effect of multimedia and interpersonal campaign tactics, mixed methods approaches

can provide valuable insight. Moreover, very new models (Quick et al., 2016) of organ donation have recently emerged, which were not used in this study, and can explain greater variance in donor registration, which can be used in campaign design and evaluation. Ideally, long-term campaigns would be beneficial to help strengthen recruitment strategies, increase the types of materials that can be disseminated, and further the data collection period.

To apply strategies from this campaign to health communication, we recommend seeking active community partners, such as branches of Donate Life. Identifying health related causes and collaboration with those organizations with classes, which have proved to be viable strategies in other experiential learning settings (e.g., Tollison & Turner, 2018). Second, within the community and understand its unique needs to best serve it; in this case, the community was largely rural and underserved communities and this branch of Donate Life had yet to partner with the town or university in the area. Results from this pilot campaign suggest a need to develop similar campaigns within rural communities where organ donation registration rates are low. Third, build teams in the classroom to educate students about health related causes and have them involved in the process (Kolb, 1984) and move towards building cooperative campaigns that serve priority health needs (Njoku & Wakeel, 2018). Fourth, it is increasingly critical that campaigns be tailored to the local community (Thomas et al., 2016), which can largely come out of strategies identified in working with community partners, students, and the setting. Strategies like these can help to bolster knowledge of key health issues and reduce disparities across university campuses in varying geographic locations across the country. This campaign highlighted the positive outcomes that can result out of reaching underserved communities, by targeting attitudes and knowledge; and by providing grassroots efforts. By providing multimedia—such as point-of-contact materials, such as pamphlets and booklets, and having on-site events—attitudes and knowledge towards organ donation can be increased, and organ donor registrants increase.

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We deeply appreciate the reviewer's feedback and are grateful for the comments shared with the manuscript. To address the feedback, the following revisions have been made:

1. The theory of planned behavior was used as the theoretical framework in the study, and is now provided in the manuscript, along with additional citations. Since the theory was used as the framework for the study design, we now more clearly detail this.
2. The literature review is more developed, along with the introduction, with key literature from health communication and organ donation campaigns that support the arguments and campaign design.
3. We ensure that the methods section is clearer and provide additional details regarding the measures used, the statistics and detail the results better in the findings section.
4. We integrated the literature with the results in the discussion section in a more meaningful manner. We also detail the limitations and future directions more clearly, and outline future research that can more easily be developed by researchers, given the significance of the topic of organ donation and the need to develop rural health campaigns in areas where point-of-decision media campaigns are crucial.

Thank you very much. We are very grateful and appreciate the time spent on the review of the study. We believe *Studies in Media and Communication* is the ideal outlet for this article.

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