Using the Theory of Planned Behavior to Predict Students’ Intentions to Register as Organ Donors in the Future

Abstract

The need for donated organs far outweighs the supply. Therefore, there is documented need for programs to increase the number of registered organ donors. This article is part of a larger study examining the impact of constructs of the Theory of Planned Behavior, family discussion, and parent donor status on student intentions to register as organ donors. Students (n=547) from three urban elementary schools responded to items on knowledge about organ donation, attitudes regarding organ donation, and intentions to become an organ donor in the future. Binary logistic regression found that normative beliefs (OR= 3.39), family discussion (OR= 4.62), and parent donor status (OR=3.48) all significantly impacted intention to register as an organ donor in the future. These findings show a need for increased communication between parents/guardians and their children regarding the donation decision as a potential way to increase the number of registered donors.

Perceived

Behavioral Control

Using the Theory of Planned Behavior to Predict Students’ Intentions to Register as Organ Donors in the Future

As of June 2013, there were over 118,600 people on the waiting list for organ donations in the United States. There were approximately 100 million registered donors in the United States with over 8,000 deceased donors in 2012 (<http://donatelife.net>). Estimations yield that 18 people die everyday waiting for an organ transplant. Currently, roughly 2% of the approximately 118,400 individuals on the waiting list are children under the age of 18 years. In 2012, there were approximately 22,000 deceased donor organ transplantations. In the same year, there were 8,143 deceased organ donors and approximately 10% were children (http://optn.transplant.hrsa.gov/latestData/rptData.asp).

A 1993 Gallup poll found that most Americans (85%) supported organ donation (Gallup Poll, 1993). Further, studies have shown positive perceptions of organ donors. One study (Hyde & White, 2009a) found participants characterized organ donors positively as altruistic, courageous, and giving. The same participants felt negatively toward non-donors and described them as self-absorbed, unaware, and uncertain/anxious. Even though most people in the United States have positive attitudes and perceptions regarding organ donation, most Americans are not registered organ donors. Only 53% of Americans have registered their posthumous donation intentions (donor or non-donor) with only 38% of licensed drivers registering as organ donors, showing a disconnect between positive attitudes toward organ donation and action to register as a donor (http://donatelife.net; Pitts, Raup-Krieger, Kundrat, & Nussbaum, 2009).

Due to the shortage of donated organs and the low percentage of registered donors, the Department of Health and Human Services challenged researchers to create innovative programs to raise donor registration rates (Burdick, 2007). Additionally, Donate Life America, a national not-for-profit alliance of organizations whose goal is to increase organ and tissue donation, issued a campaign to register 20 million new donors in 2012 (<http://donatelife.net>). Therefore, there is a well-recognized need for programs aimed at raising donor registration rates. The purpose of this research was to conduct a needs assessment to provide insights about factors that increase student intentions to register as organ donors in the future. This study was also part of a larger research project that may be used to modify an existing curriculum developed to increase intention to register as organ donors in the future among upper elementary school students.

The Theory of Reasoned Action/Theory of Planned Behavior provided a framework for this needs assessment. The Theory of Planned Behavior is a modification of the Theory of Reasoned Action. Both theories are value-expectancy theories, which operate on the intrapersonal level. The premise of both theories is that behavior is best predicted by intentions (Azjen & Fishbein, 1980; Ajzen, 1991).

The Theory of Reasoned Action utilizes the constructs of attitudes and subjective norms to impact intention, which leads to behavior. The attitudes construct is defined by two determinants, which are outcome expectancy (OE) and evaluation of the outcome (EO). Outcome expectancy examines what the individual perceives to be true. This determinant does not place value, instead it simply states what the individual feels the result of a certain event or idea will be. EO places value on the examined outcome. This determinant asks the individual to identify if the outcome is desirable or undesirable. Subjective norms (SN) examines one’s perceptions of those individuals in his or her sphere of influence (perceived normative beliefs) and the need the individual has to comply with these perceptions (motivation to comply). The Theory of Planned Behavior also employs attitudes and subjective norms with the addition of perceived behavioral control (PBC). PBC examines an individual’s perception of his or her ability to carry out a behavior (control beliefs) and perception of available opportunities to perform the behavior (perceived power). Both ability and opportunity are important contributors to intention and ultimately behavior. In the framework, the likelihood that an individual will intend to perform a behavior is greatly increased if he or she feels control over the situation. Intention to carry out a behavior shows that one plans to adopt, change, or maintain a behavior (Azjen & Fishbein, 1980; Ajzen, 1991; Glanz, Rimer, & Lewis, 2002; Nutbeam & Harris, 1999). Figure 1 presents an overview of the Theory of Planned Behavior.

Outcome

Expectancies



Attitudes

Evaluation of the Outcome

Subjective

Norms

Normative Beliefs

Motivation to Comply

Perceived

Power

Perceived Behavior Control

Control Beliefs

Figure 1. The Theory of Planned Behavior. Adapted from Nutbeam, D. & Harris, E. (1999). *Theory in a Nutshell; A Guide to Health Promotion Theory*. Australia: McGraw-Hill

The purpose of this study was to determine which factors would be the best predictors of intention to register as organ donors in the future among upper elementary school students. This information could then be incorporated as part of a health promotion program to introduce students to organ donation.

Method

*Participants*

Three urban elementary schools in Kentucky which expressed interest in having an educational curriculum promoting healthy lifestyle, nutrition, physical activity, and introducing organ donation were chosen as a convenience sample for this study. A total of 547 fourth and fifth grade students from the schools took part in the assessment. The participating sample included girls (n=283; 51.7%) and boys (n=264; 48.3%) between the ages of 8 to 12, in the 4th (n=269; 49.2%) and 5th (n=278; 50.8%) grades. Almost half of the students (n=268; 49%) were from minority ethnic groups. A profile of student demographics is shown in Table 1.

Insert Table 1 about here.

*Materials*

A 55-item inventory modified from existing instruments (Cardenas, Thornton, Wong, Spigner, & Allen, 2010; Horton & Horton, 1991; Hyde & White, 2009b; Morgan & Miller, 2001; Reubsaet, Brug, De Vet, & Van den Borne, 2004; Rumsey, Hurford, & Cole, 2003; Ryckman et al., 2009; Spigner et al., 2002; Weaver, Spigner, Kimi, Rabun, & Allen, 2000) was used for data collection purposes. The survey consisted of multiple choice, true/false, yes/no responses as well as Likert scale items. The reading level for the portion of the survey measuring general knowledge on organ and tissue function, nutrition, and physical activity on the Flesch-Kincaid scale was a 1.2 and should have been easily read by 7-8 year olds (www.read-able.com). The reading level for portion of the survey measuring factors related to organ and tissue donation on the Flesch-Kincaid scale was a 4.1 and should have been easily read by 10-11 year olds (www.read-able.com).Experts in the fields of anatomy and physiology, school health, and organ/tissue procurement reviewed the instrument and established content validity.

*Procedure*

After receiving approval from the university Institutional Review Board (IRB) and the school board of the participating schools, the study was conducted. A convenience sample of three schools was contacted by a representative of the research team to take part in the study. Packets were sent home to parents in students’ weekly work folders. The packets explained the program and provided the opportunity for the parents to “opt-out” if they did not wish for their student to take part in the assessment. Student assent was obtained prior to taking the survey.

Students at each school completed a pen-and-paper assessment administered by homeroom teachers in their regular classrooms. After the surveys were completed, the homeroom teacher returned surveys to research personnel for analysis.

The data were analyzed using Predictive Analytics Software (PASW) 18.0 for the Social Sciences. Scales were created for attitudes toward organ donation and normative beliefs. After the scales were created, Cronbach Alpha analysis measured scale reliability and indicated if any items needed to be removed.

Knowledge regarding organ donation was measured using 13-items “yes/no” adapted from the previous literature (Horton & Horton, 1991; Rumsey et al, 2003; Ryckman et al., 2009; Spigner et al., 2002). Possible range of scores was from 0-13.

Attitudes were measured using 4 items with responses ranging on a 4-point scale from strongly disagree to strongly agree. The items were adapted from previous literature (Horton & Horton, 1991; Reubsaet et al, 2004; Rumsey et al, 2003; Ryckman et al., 2009; Spigner et al., 2002): “I think organ donation is a good thing,” “ I view organ donation as a bad thing,” “Organ donation helps others,” “I support organ donation.” Possible range of scores was from 0-12 and the alpha coefficient for attitudes toward organ donation was .704.

Normative beliefs were measured using two items with responses ranging on a 4-point scale from strongly agree to strongly disagree. The items were adapted from previous literature (Horton & Horton, 1991; Reubsaet et al, 2004; Rumsey et al, 2003; Ryckman et al., 2009; Spigner et al., 2002): “Important people in my life would not want me to sign up as an organ donor,” “It is important to me to be like my friends and family who approve of organ donation.” Possible range of scores was from 0-6 and the alpha coefficient for normative beliefs was .429.

In addition to the constructs of the TRA, the factors of family discussion and perceived parent donor status were measured to see their impacts on intentions to register as organ donors in the future. Family discussion regarding organ donation was determined by one question, “I have spoken to a family member about organ donation.” Another question, “Has at least one of your parents signed up to be an organ donor?” was used to determined perceived parent donor status.

One item was used to determine intention to register as an organ donor in the future among students, “When I am older, I plan to sign up to be an organ donor.” The proportion of students within each school answering “yes” or “no” at the time of assessment were compared using chi-square analysis. Binary logistic regression was used to determine which factors had a significant influence on students’ intentions to register as an organ donor in the future.

Results

Binary logistic regression analysis showed that students that reported having had a family discussion about organ donation were more than four times (OR= 4.622; p=.000) as likely to indicate intention to register as organ donors in the future than students who had not had a family discussion (95% confidence interval 2.165-9.866). Additionally, having a parent that signed the donor registry significantly impacted positive student intention to register as a donor in the future. Students that indicated that one or more of their parents were registered organ donors were more than three times as likely to indicate intention to register as organ donors in the future than students whose parent(s) was not a registered organ donor (OR=3.477, 95% confidence interval 2.110-5.730; p=.000). Students that scored higher on the Normative Beliefs scale were more likely to indicated intention to register as an organ donor in the future (OR=3.389, 95% confidence interval 2.022-5.681; p=.000). However, binary logistic regression showed that knowledge about organ donation (p=.098), Attitudes regarding organ donation (p=.085), gender (p=.235), race (p=.098), grade (p=.475), age (p=.290), mother’s level of education (p=.605), father’s education level (p=.730) did not significantly impact intention to register as an organ donor in the future. Odds ratios for all significant factors may be found in Table 2.

Insert Table 2 about here.

Discussion

The only TRA construct that significantly impacted intentions to register as organ donors among students was subjective norms. Therefore, based on this model, those students with the perception that “important others” in their lives viewed organ donation positively and had a motivation to follow along with these important others were more likely to indicate intentions to register as organ donors in the future. These findings are consistent with the framework for the Theory of Reasoned Action in which subjective norms are one driving force for intention. However, several possible limitations must be noted. First, the Cronbach alpha for normative beliefs was low (Cronbach alpha = .429). Therefore, additional research should examine the scale items used to operationalize this construct in order to increase scale reliability. Additionally, intention is a stronger predictor of behavior when the time between when intention is measured and the behavior occurs is relatively short (Azjen, 1991; Glanz, et al., 2002). Since this study measured intention at a point at least 4 years before the behavior will be permitted to occur (registering as an organ donor), it is unknown if intention was a strong predictor of behavior. Therefore, more research is needed to examine if increased intention increased the likelihood of registering as an organ donor when able.

Overwhelmingly, the factors of family discussion and parent donor status were significant predictors of intention to register as organ donors among students. Research has indicated (Rodrigue et al, 2006) that family discussion about organ donation is a positive predictor for donor registration. The findings of this study among upper elementary school students were consistent with previous findings among adolescents and adults. The results of this study indicate that the use of parent donor status as a positive predictor for students’ intention to register as organ donors in the future provides the basis for further research to examine if this pattern is also true for other groups. These findings also emphasize the need for programs that encourage parents to register as organ donors and then have a discussion with their children regarding their donation decision.

The need for creative methods to increase donor registration rates has been well established. This study may guide the development of educational programs that inform children of the opportunity and importance of organ donation. Based on the findings of this study, a program that provides instruction on how to conduct a family discussion about organ donation and encourages parents to register as donors and inform their children of their decision may positively influence the intention of upper elementary school to register as organ donors. Although this type of program is not a standard offering for health communication, there is a huge public health need to increase the number of registered donors. Based on these findings, increasing communication between parents/guardians and their children regarding the donation decision could be a powerful way to increase the number of registered donors.

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Table 1, Profile of Student Demographic Information (N=547)

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | n | % |  |
| Sex  |  |  |  |
|  Female  | 283 | 51.7 |  |
|  Male  | 264 | 48.3 |  |
| Age  |  |  |  |
|  <9 | 88 | 16.1 |  |
|  10 | 258 | 47.2 |  |
|  11 | 186 | 34.0 |  |
|  12 | 15 |  2.7 |  |
| Grade in School  |  |  |  |
|  4th  | 269 | 49.2 |  |
|  5th  | 278 | 50.8 |  |
| Race |  |  |  |
|  White/Caucasian | 279 | 51.0 |  |
|  African-American  | 157 | 28.7 |  |
|  Hispanic | 48 |  8.8 |  |
|  Asian | 15 |  2.7 |  |
|  Other | 48 |  8.8 |  |

Table 2, Odds Ratios for Factors Significantly Impacting Intention to Register as Organ Donor (n=547)

|  |  |  |
| --- | --- | --- |
| Variable | OR | 95% CI |
| Normative Beliefs |  3.39\* | [2.02, 5.68] |

Family Discussion 4.62\* [2.17, 9.87]

Parent Registered Donor 3.48 \* [2.11, 5.73]

*Note. OR=odds ratio; CI= confidence interval.*

*\*p < .05.*