The Public Face of Transplantation: The Potential of Education to Expand the Face Donor Pool

Natalie M. Plana, B.A.
Laura L. Kimberly, M.S.W., M.B.E.
Brendan Parent, J.D.
Kimberly S. Khouri, B.S.
J. Rodrigo Diaz-Siso, M.D.
Elise M. Fryml, B.S., M.Sc.
Catherine C. Motosko, B.S.
Daniel J. Ceradini, M.D.
Arthur Caplan, Ph.D.
Eduardo D. Rodriguez, M.D., D.D.S.

New York, N.Y.

Background: Despite the growing success of facial transplantation, organ donor shortages remain challenging. Educational health campaigns can effectively inform the general public and institute behavioral modifications. A brief educational introduction to facial transplantation may positively influence the public's position on facial donation.
Methods: The authors anonymously surveyed 300 participants, gathering basic demographic information, donor registration status, awareness of facial transplantation, and willingness to donate solid organs and facial allografts. Two-hundred of these participants were presented an educational video and subsequently resurveyed on facial donation. Factorial parametric analyses were performed to compare exposure responses before and after watching video exposure.
Results: Among participants completing the survey alone (control group), 49 percent were registered donors, 78 percent reported willingness to donate solid organs, and 52 percent reported willingness to donate facial allograft. Of participants who watched the video (video group) 52 percent were registered; 69 and 51 percent were willing to donate solid organs and face, respectively. Following educational intervention, 69 percent of participants in the video group reported willingness to donate facial tissue, an 18 percent increase ($p < 0.05$), that equated to those willing to donate solid organs. The greatest increase was observed among younger participants (23 percent); women (22 percent); Jewish (22 percent), Catholic (22 percent), and black/African American (25 percent) participants; and respondents holding a higher degree. No significant differences according to gender or ethnicity were observed.
Conclusion: Educational interventions hold much promise for increasing the general public's awareness of facial transplantation and willingness to participate in donation of facial allografts. (*Plast. Reconstr. Surg.* 141: 176, 2018.)

Facial transplantation has become a successful treatment option for severe forms of facial disfigurement.[1,2] As this field continues to grow, the formidable organ donor shortage will become an even deeper concern.[3] The demand for life-saving solid organs far outweighs their supply, complicating donation for non–life-saving, but rather life-enhancing, vascularized composite tissue allografts that require more specific matching criteria, including hand, face, abdominal wall, penis, and other forms of vascularized composite tissue allografts. Research indicates that positive

From the Hansjörg Wyss Department of Plastic Surgery and the Division of Medical Ethics, New York University Langone Medical Center.
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attitudes toward organ donation are associated with favorable decisions to donate among next of kin.[4–7] Family members also are more likely to agree to donate a loved one's organs when they have discussed organ donation with the deceased and are aware of his or her donation preferences.[4–6] Furthermore, they are more likely to donate when the timing of the donation request is considered favorable.[5,6] In the specific context of facial transplantation, reasons that may impede facial allograft donations reportedly include the perceived cultural importance of the face, its role in personal identity, and religious beliefs.[8]

Although there is much to learn about attitudes among the general public toward vascularized composite tissue allograft donation, preliminary evidence suggests that individuals may not even be aware of this possibility.[9] On learning about the option of vascularized composite tissue allograft donation without further explanation, individuals may be less willing to donate vascularized composite tissue allograft tissues than solid organs.[8] In addition, previous studies have shown that cultural differences or religious beliefs may impact willingness to donate or accept a face if needed.[7,10] In light of these factors, concerns have been raised about the possibility that requests for vascularized composite tissue allograft donations may, in fact, jeopardize the supply of solid organs because potential donors are mistakenly afraid that agreeing to general organ donation would require that they also agree to vascularized composite tissue allograft donation.[11]

An individual's willingness to donate solid organs has been linked to exposure to information about organ transplantation[12]; this relationship may also be applicable to vascularized composite tissue allografts. Studies have demonstrated that increasing public awareness on the topic can have a positive impact on perceptions of, and attitudes toward, organ donation and transplantation, and rates of consent to donation.[13,14] This study presents survey-based results highlighting the impact of a brief educational intervention on the general public's willingness to donate facial allografts for facial transplantation.

PATIENTS AND METHODS

Surveys were designed to gather anonymous basic demographic information, including age, gender, race/ethnicity, religion, and highest level of education. Questions regarding organ donor registration status, willingness to donate solid organs, knowledge of facial transplantation, and willingness to donate facial allografts followed. (**See Survey, Supplemental Digital Content 1**, which shows the complete survey administered to respondents with listed questions collecting information regarding respondent demographics, organ donor registration status, and willingness to donate solid organs or facial allografts, ***http://links.lww.com/PRS/C521***.) Separately, a 3-minute educational video was produced with basic information describing indications for facial transplantation, the donor-recipient matching process, challenges with the procedure and postoperative recovery, and general outcomes of two face transplant recipients. The information was presented in the form of photographs of donors and recipients throughout the facial transplantation process, with details of pretransplant and posttransplant elements explained through voiceover narration. Every effort was made to present the information in an objective and balanced manner, avoiding overly graphic imagery that may be disturbing to the lay public and could bias results. (**See Video, Supplemental Digital Content 2**, which shows the full educational video played for respondents in the video group containing basic information about the facial transplantation process, highlighting two face transplant recipients, ***http://links.lww.com/PRS/C522***.)

On obtaining internal review board approval, study members approached individuals in a public park in New York, New York. The first 100 participants were recruited into the control group, and completed the survey alone, as described above, on a portable tablet. The remaining 200 participants were enrolled in the intervention, or video group; they completed the same survey and subsequently watched the educational video on the tablet before answering one final question reassessing their willingness to donate facial allografts. Respondents were offered a round-trip access card to public transportation for participating in the study (overall value, $5.50).

Factorial parametric analyses were performed to compare responses before and after video exposure. Willingness to donate one's face and demographic variables were included independently and systematically into the factorial analyses, yielding three separate mixed-design analyses of variance: gender, religion, and ethnicity. Native American respondents were not included in the analysis because of low sample size ($n = 1$), and "multi" was used to distinguish those who self-identified under more than one category (e.g., black/African American and white/Caucasian).

Video. Supplemental Digital Content 2 shows the full educational video played for respondents in the video group containing basic information about the facial transplantation process, highlighting two face transplant recipients, ***http://links.lww.com/PRS/C522***.

Table 1. Demographic Distribution of Study Participants in the Control and Experimental Groups

Characteristic	Control Group	Experimental Group
No.	100	200
Age		
18–25 years	40	103
26–35 years	24	47
36–45 years	12	11
46–55 years	11	13
>56 years	13	26
Sex		
Male	53	102
Female	47	98
Religion		
Christian/Catholic	37	87
Jewish	6	27
Muslim	7	17
Buddhist	3	22
Hindu	1	16
Agnostic	13	54
Atheist	18	41
Other	11	14
Race/ethnicity		
White/Caucasian	64	131
Black/African American	12	20
Hispanic/Latino	3	29
Asian/Pacific Islander Native	15	35
American	0	3
Middle Eastern	4	0
Education		
Some or no high school	1	4
High school/GED	5	23
Some college (no degree)	12	37
Trade/vocational training	1	1
Associate's degree	3	9
Bachelor's degree	34	80
Master's degree	31	29
Professional degree	4	5
Doctoral degree	9	12

GED, General Educational Development.

RESULTS

Cohort Demographics

The demographic breakdown of the control and video groups is shown in Table 1, with similar distributions for both. Participants most commonly fell within the age range of 18 to 25 years (47.6 percent). There was an equal distribution of male and female participants. Respondents most commonly identified as Christian/Catholic (41.3 percent), and the majority of individuals reported their ethnicity as white (65 percent). Most participants had received a bachelor's degree (38 percent) or higher (30 percent).

Donor Registration and Willingness to Donate: Responses

Among the control group, 49 percent of participants were registered organ donors at the time of the study (Fig. 1, *left*). However, 78 percent responded that they were willing to donate their solid organs to save the life of a transplant candidate on a waiting list. Sixty-two percent had prior knowledge of facial transplantation before responding to the survey. Fifty-two percent of respondents reported a willingness to donate their face to someone with severe facial disfigurement; 29 percent were unsure, and 19 percent were not willing. Similarly, among the video group, 52 percent of participants were registered organ donors at the time of survey response, and 69 percent were willing to donate their solid organs for life-saving transplants (Fig. 1, *right*). Sixty-three percent reported knowledge of

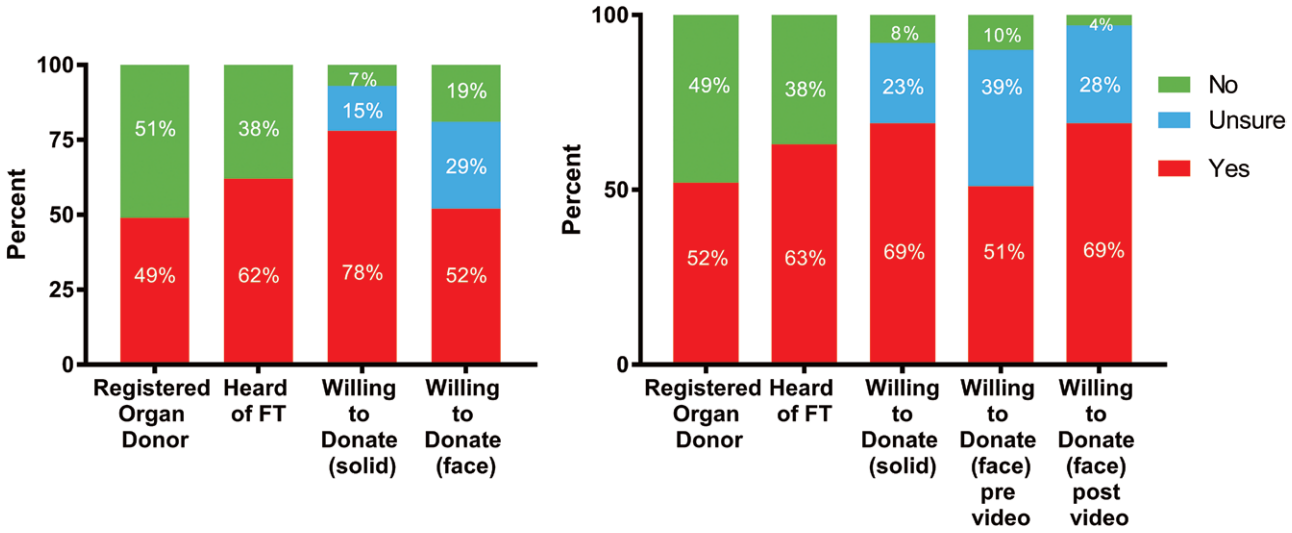

Fig. 1. Donation responses for (*left*) the control group and (*right*) the video group.

facial transplantation before recruitment for the study. Before the educational intervention, 51 percent reported willingness to donate their face for facial transplantation, 39 percent were unsure, and 10 percent were unwilling. After exposure to information about facial transplantation, 69 percent of respondents were willing to donate their face (an 18 percent increase). Among the 98 respondents who were unwilling or unsure of their intention to donate facial allografts before the educational intervention, a 35.7 percent shift was observed toward "willing to donate." This shift signaled a 65 percent (13 of 20) decrease in respondents unwilling to donate and a 28 percent decrease in respondents unsure of their intention to donate.

Young adult to middle-aged participants (age 18 to 35 years) displayed more positive responses to the educational component of the study. Exposure to the educational video resulted in a 19 percent and a 23 percent increase in willingness to donate facial allografts among the 18- to 25- and 26- to 35-year-old age groups, respectively (Table 3). Interestingly, the gap between donor registration status and willingness to donate facial allografts after educational exposure was most apparent in younger participants, with a 24 percent and 15 percent discrepancy for both 18- to 25- and 26- to 35-year-old age groups, respectively.

Donor registration status was fairly even between genders, and both male and female respondents were equally aware of facial transplantation before the study (Table 2). Although women reported a higher interest in participating in solid organ donation, the groups were equally interested in donating facial tissue before watching the educational video. After the educational exposure, however, female respondents' willingness increased by 22 percent, whereas male respondents increased by only 14 percent. Jewish respondents reported the highest rate of donor registration (62 percent). Eighty percent of Hindu respondents reported interest in solid organ donation despite a 0 percent rate of donor registration status (Table 3). Christian/Catholics and agnostics were most willing to donate facial tissue before and after education on facial transplantation. Jewish respondents were most aware of facial transplantation, and the video had the least influence in increasing this religious group's interest in participating in facial transplantation donation.

Throughout the various racial/ethnic groups, Caucasians and Asian/Pacific Islanders were among the most willing to donate both solid organs and facial allografts before educational exposure (Table 3). Despite being among the lowest number of respondents registered to donate at the time of the study, black/African American respondents were strongly impacted by the educational video, which encouraged an additional 25 percent of respondents (who were previously unsure or unwilling) to state interest in participating in facial transplantation donation.

Responses were varied depending on levels of education. A higher percentage of individuals who graduated college and/or obtained a higher degree were registered to donate and were willing to donate both solid organs and facial tissue (Table 3). Individuals with a doctoral degree reported the highest increase in willingness to

Table 2. Demographic Breakdown of Positive Survey Responses for the Control Group

	Registered Organ Donors (%)	Willing to Donate Solid Organs (%)	Heard of Face Transplant (%)	Willing to Donate Face (%)
Age				
18–25 years	20 (50)	32 (80)	23 (58)	17 (43)
26–35 years	11 (46)	18 (75)	18 (75)	14 (58)
36–45 years	5 (42)	10 (83)	7 (58)	6 (50)
46–55 years	6 (55)	9 (82)	8 (73)	9 (82)
>56 years	7 (54)	9 (69)	6 (46)	6 (46)
Sex				
Male	26 (49)	42 (79)	35 (66)	33 (62)
Female	23 (49)	36 (77)	27 (57)	19 (40)
Religion				
Christian/Catholic	15 (41)	30 (81)	23 (62)	17 (46)
Jewish	3 (50)	6 (100)	5 (83)	5 (83)
Muslim	3 (43)	5 (71)	7 (100)	3 (43)
Buddhist	0 (0)	1 (33)	0 (0)	1 (33)
Hindu	0 (0)	1 (100)	1 (100)	0 (0)
Agnostic	12 (67)	16 (89)	11 (61)	12 (67)
Atheist	8 (62)	11 (85)	10 (77)	9 (69)
Other	5 (45)	5 (45)	5 (45)	4 (36)
Race/ethnicity				
White/Caucasian	36 (56)	57 (89)	45 (70)	41 (64)
Black/African American	4 (33)	7 (58)	9 (75)	3 (25)
Hispanic/Latino	1 (33)	2 (67)	1 (33)	1 (33)
Asian/Pacific Islander Native	3 (20)	7 (47)	3 (20)	4 (27)
American	0 (0)	0 (0)	0 (0)	0 (0)
Middle Eastern	3 (75)	3 (75)	4 (100)	2 (50)
Education				
Some or no high school	1 (100)	1 (100)	1 (100)	1 (100)
High school/GED	0 (0)	0 (0)	0 (0)	0 (0)
Some college (no degree)	8 (67)	9 (75)	8 (67)	5 (42)
Trade/vocational training	1 (100)	1 (100)	1 (100)	1 (100)
Associate's degree	3 (100)	3 (100)	1 (33)	1 (33)
Bachelor's degree	0 (0)	0 (0)	0 (0)	0 (0)
Master's degree	0 (0)	0 (0)	0 (0)	0 (0)
Professional degree	2 (50)	4 (100)	2 (50)	3 (75)
Doctoral degree	4 (44)	7 (78)	7 (78)	6 (67)

GED, General Educational Development.

donate their face (25 percent), followed by individuals who hold a bachelor's degree (23 percent) and individuals who had some college education (22 percent).

Statistical Analyses

The sample size studied provided sufficient power for formal statistical analysis. Overall, analyses indicated a moderate to strong main effect of the video on increasing willingness to donate facial allografts across demographic characteristics. A 2 (gender) × 2 (time point: before versus after video) mixed design analysis of variance performed on willingness to donate face organs revealed a main effect of the video on significantly increasing the willingness of participants to donate ($F_{1,198} = 42.71$, $p < 0.000$, partial $\eta^2 = 0.18$). There was no main effect of gender, nor was there a significant gender × time point interaction; $p > 0.05$ for all. Therefore, gender appeared to have no influence on willingness to donate in the experimental group.

The analysis of variance performed on willingness to donate facial organs based on religion demonstrated, again, a significant main effect of the video ($F_{1,194} = 31.16$, $p < 0.000$, partial $\eta^2 = 0.14$). A weak but significant main effect of religion was also found ($F_{5,194} = 2.49$, $p < 0.05$, partial $\eta^2 = 0.06$). The weak effect size may be attributable to the small sample size in some of the religious groups. Nevertheless, post hoc multiple (least significant difference) comparisons were performed on religion, and Buddhists differed from both Christian/Catholic and nontheist groups significantly ($p < 0.05$ for all), but all other religious group comparisons were nonsignificant ($p > 0.05$ for all). The religion × time point interaction was not significant, suggesting that although differences in willingness to donate differed across religions, there was not

Table 3. Demographic Breakdown of Positive Survey Responses for the Experimental Group

	Registered Organ Donors (%)	Willing to Donate Solid Organs (%)	Heard of Face Transplant (%)	Willing to Donate Face	
				Before Video (%)	After Video (%)
Age					
18–25 years	46 (45)	70 (69)	67 (66)	51 (50)	70 (69)
26–35 years	27 (57)	31 (66)	23 (49)	23 (49)	34 (72)
36–45 years	4 (36)	9 (82)	7 (64)	4 (36)	5 (45)
46–55 years	10 (77)	11 (85)	10 (77)	8 (62)	9 (69)
>56 years	16 (62)	17 (65)	18 (69)	16 (62)	19 (73)
Sex					
Male	50 (49)	62 (61)	64 (63)	53 (52)	67 (66)
Female	53 (55)	76 (78)	61 (63)	49 (51)	70 (72)
Religion					
Christian/Catholic	40 (56)	57 (79)	45 (63)	40 (56)	56 (78)
Jewish	8 (62)	10 (77)	10 (77)	5 (38)	7 (54)
Muslim	2 (29)	3 (43)	4 (57)	2 (29)	4 (57)
Buddhist	3 (33)	2 (22)	4 (44)	2 (22)	4 (44)
Hindu	0 (0)	4 (80)	2 (40)	1 (20)	2 (40)
Agnostic	22 (50)	19 (68)	22 (79)	14 (50)	19 (68)
Atheist	15 (54)	29 (68)	28 (64)	25 (57)	32 (73)
Other	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Race/ethnicity					
White/Caucasian	68 (60)	83 (73)	74 (65)	62 (54)	86 (75)
Black/African American	4 (25)	8 (50)	9 (56)	4 (25)	8 (50)
Hispanic/Latino	11 (48)	17 (74)	17 (74)	11 (48)	16 (70)
Asian/Pacific Islander	9 (33)	19 (70)	15 (56)	15 (56)	17 (63)
Native American	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Middle Eastern	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Education					
Some or no high school	2 (50)	3 (75)	2 (50)	2 (50)	2 (50)
High school/GED	7 (30)	18 (78)	13 (57)	11 (48)	14 (61)
Some college (no degree)	16 (43)	24 (65)	25 (68)	21 (57)	29 (78)
Trade/vocational training	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Associate's degree	3 (33)	4 (440)	5 (56)	3 (33)	2 (22)
Bachelor's degree	49 (62)	61 (77)	52 (66)	41 (52)	59 (75)
Master's degree	12 (41)	13 (45)	13 (45)	13 (45)	17 (59)
Professional degree	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Doctoral degree	10 (83)	10 (83)	11 (92)	6 (50)	9 (75)

GED, General Educational Development.

a differential susceptibility among the religious groups to the effects of the video.

The 5 (ethnicity: Asian/Pacific Islander, black/African American, white/Caucasian, Hispanic/Latino) × 2 (time point: before versus after video) analysis of variance again revealed a significant main effect of the video ($F_{1,194} = 42.71$, $p < 0.000$, partial $\eta^2 = 0.08$). No statistically significant differences were observed because of ethnicity, nor was there a significant interaction between ethnicity and the effects of the video ($p > 0.05$ for all).

The effects of the video were consistent across all parametric factorial analyses; regardless of group categorical classifications (gender, religion, or ethnicity) the effects of the video were significant ($p < 0.000$ for all). The power of the video to provoke changes varied across analyses; partial η^2 values ranged from 0.18 to 0.08. Thus, to obtain a deeper understanding of the singular effect of the video, a paired t test was performed before versus after video exposure in the absence of any categorical variable [$t(199) = 6.50$, $p < 0.000$]. The effect size for this analyses (partial $\eta^2 = 0.18$) shows that across the range of demographic characteristics, the video produced a moderate to strong effect on willingness to donate.

DISCUSSION

We present preliminary, survey-based results that demonstrate the value of an educational intervention for increasing individuals' consideration of donation for facial transplantation. The universal organ donor shortage remains a major limitation to widespread transplantation, and considerable efforts have been directed toward the design of intricate algorithms for organ allocation from a restricted donor pool. However, increasing the supply of organs available for donation each year may prove a more definitive solution.

Moreover, as only a fraction of organ donors agree to donate vascularized composite tissue allografts, increased donor registration is a prerequisite for progress in the relatively new field of vascularized composite tissue allografting.

Several studies demonstrate that education is a promising route to public donation willingness and intention to donate,[13,15,16] and some suggest the capacity for education to influence actual registration and the availability of solid organs.[14,17] However, vascularized composite tissue allograft donation faces the additional hurdle of public skepticism. Hand, face, and other vascularized composite tissue allograft transplants are newer, less well understood by the public, and may elicit a different emotional reaction than solid organ transplants because of their strong association with personal identity.[18,19] Facial transplantation reports in the media certainly have some effect on public attitudes,[20] and framing of organ donation (be it positive or negative) in entertainment television has been found to be influential.[21] In addition, the role of religion regarding opinions on vascularized composite tissue allograft is unclear; some studies found an association between religious beliefs and willingness to donate, whereas others have not.[7] This study hints at some differences among religious groups; however, a larger cohort study is needed to determine a strong association.

These results show that even a brief educational experience increased individuals' reported willingness to donate their face for transplantation, with statistical significance, in 18 percent of participants. Interestingly, younger respondents (18 to 35 years) and older respondents (>56 years) demonstrated a stronger response to the educational intervention compared with middle-aged participants, highlighting a generational gap and indicating important target populations for potential facial transplantation educational initiatives. Notably, younger donors are preferred as facial donors to achieve optimal functional and aesthetic results in facial transplantation.[22] Similarly, older individuals' perceptions of donation are important as, currently, donor families' consent is sought for facial donation. Further study could help to elucidate age-related differences in the impact of educational interventions. With respect to gender, women's desire to donate their face appeared more likely to be influenced by this short educational component; however, gender-based differences did not reach statistical significance. This suggests that although women may be more reluctant to participate in facial transplantation donation initially compared with solid-organ donation, increased exposure may lead them to agree more strongly with the value of facial donation for the purpose of treating severe disfigurement. Also of importance, we observed a greater change in donation considerations among ethnic groups (blacks/African Americans, Hispanic/Latinos) who are reported to have lower donor registration rates compared with whites/Caucasians. However, statistical analysis did not reveal differences associated with ethnicity. We also observed a trend between higher level of education and increased willingness to donate the face, which was expected.

As enlightening as these observed increases in willingness to donate may be, these results underscore previously reported significant discrepancies between individuals' willingness to donate and actual commitment to donate as expressed through donor registration rates.[8,15] Despite 78 percent of control group respondents and 69 percent of video group respondents indicating that they would consider donating their organs, only 50 percent and 52 percent from each group, respectively, reported being registered donors. To some extent, this issue may be attributed to the inopportune nature of donor registration requests. In settings such as the Department of Motor Vehicles, individuals have little opportunity to learn about organ donation, or to ask questions that might help convert their intent to donate into a decision to register. The willing-versus-registered gap might also be attributable, in part, to a lack of awareness regarding the possibility of other means of registration, for instance, registering by means of an online registry. The issues of inconvenience and lack of awareness can be overcome by directing unregistered individuals to online registries[14] which, as of 2014, are responsible for 46 percent of recovered organ donor authorization.[23] Other forms of social media outreach have demonstrated potential for increasing donor registration rates.[24]

However, simply providing the opportunity to register may not increase willingness to donate vascularized composite tissue allograft. In fact, it is possible that alerting potential donors to the existence of vascularized composite tissue allograft donation without providing additional information could decrease interest in solid organ donation because of mistaken fear that the latter requires the former. However, this study strongly supports adequate and accurate spread of information to increase awareness that will likely result in increased donation rates. Providing uniquely positioned figures such as Department of Motor Vehicles clerks and medical students or other

health care providers with this education might improve dissemination of vascularized composite tissue allograft facts.[16,17] An educational component combined with the opportunity to register quickly and easily by means of an online state registry can be implemented in public locations and in classrooms so that newly informed people can bring their registration intentions to fruition.

As a small-scale pilot, this study has two primary limitations. First, the sample size is drawn from an urban population that does not reflect demographic distributions in the general population. Although efforts were made to ensure that the population sampled was as representative as possible, the respondents reached higher levels of education than might be found among the general population. Larger scale studies are needed to generalize the results to the U.S. population with respect to overall demographics, donor registration status, awareness of organ donation, and willingness to donate. In addition, larger studies can delve into broader concepts including opinions on donating a family member's facial tissue. Second, conclusions cannot be drawn regarding respondents' actual commitment to change their donor registration status and/or consent to facial allograft or even solid organ donation. However, what can be concluded from this study is that even the briefest educational intervention can strongly encourage the general public to become more amenable to the concept of facial allograft donation and the positive impact it can have on a potential recipient. Furthermore, based on these preliminary results, we hypothesize that more substantial and directed educational efforts at a regional or national level may have a similarly positive impact on the general population's intent and, ultimately, commitment to donate facial allografts.

It is crucial that educational interventions provide balanced and objective information indicating the extent of vascularized composite tissue allograft experience (whether procedures are considered experimental or standard of care) and specifying potential risks in addition to benefits, so that individuals are empowered to make informed decisions that align with their own beliefs and values.[25] As long as the United States retains an "opt-in" donation system, there is an ethical obligation to ensure that individuals not be unfairly influenced into registering because of misinformation or lack of information. Furthermore, if a registered party discover that their decision to register was based on biased information, the resulting breach of trust would likely have negative consequences for future registration.

PSYCHOSOCIAL INSIGHTS

Dr. David B. Sarwer is Associate Dean for Research, Professor of Social and Behavioral Sciences, and Director of the Center for Obesity Research and Education, College of Public Health, Temple University, Philadelphia, Pa.

Dr. Laura A. Siminoff is Dean and Laura H. Carnell Professor of Public Health, Department of Social and Behavioral Sciences, Temple University, Philadelphia, Pa.

The last several decades have witnessed significant advances in trauma care that have allowed countless individuals to survive devastating injuries to the head and face. Many of these individuals subsequently undergo reconstructive procedures performed by plastic surgeons. The goal of these procedures is to improve functioning to enable proper intake of nutrition and improve verbal communication. A secondary goal for many procedures is to enhance facial appearance to an approximation of normality. Unfortunately, patients who suffer significant facial trauma are often left with substantial, residual disfigurement, which, independent of functional impairment, is associated with a significant psychosocial burden. This burden is often worsened by the social isolation, stigmatization, if not outright discrimination, that these individuals often experience when interacting with the general public.

For individuals who have suffered a catastrophic insult to the head or face, vascularized composite allotransplantation (VCA) may be a viable treatment option when the injuries are not amenable to treatment with traditional surgical procedures. The past decade has provided an inspiring glimpse at the great potential of vascularized composite allotransplantation. However, the ultimate promise of these procedures may be hampered by a number of factors. The possibility of donation for vascularized composite allotransplantation likely is unknown to many individuals in the general public and, for others, subject to misperceptions and fears. For example, many individuals are likely unaware of the profound emotional suffering experienced by many recipients. Others may be concerned about the impact of donation on the appearance of the deceased donor,

whether it be themselves or a loved one. The ultimate success and impact of vascularized composite allotransplantation in the future turns on the willingness of individuals to designate themselves as possible donors or have their family decision makers be willing to consider vascularized composite allotransplantation donation along with more standard donation of solid organs.

Over the past several years, studies have suggested that the acceptability of vascularized composite allotransplantation donation is less than that for solid organ donation. However, a sizable minority of individuals report that they would provide a facial allograft. Thus, there appears to be some level of acceptability of vascularized composite allotransplantation in the general population. The present study builds on this work. Plana and colleagues found that a brief educational introduction to face transplantation, designed to correct common misperceptions about the procedure, had a positive impact on an individual's willingness to donate a facial allograft in the future. Willingness to donate varied by age, gender, ethnicity, religion, and education level, as is often seen in studies of potential solid organ donors.

These results, while preliminary and in need of replication to enhance generalizability, are very encouraging. Brief educational interventions are used to promote a wide range of health behaviors and play an important role in a number of large public health campaigns. Similar interventions have been used with great success in other areas of medicine, such as solid organ donation and gene therapy. Results of this study provide an important foundation to the development and use of a more sophisticated, theoretically based educational intervention that could be used to positively impact attitudes toward disfigurement as well as vascularized composite allotransplantation donation. This research approach is more commonly seen in public health and other areas of medicine; it is rather novel to plastic surgery. Regardless, the impact of further research on society's views on disfigurement and vascularized composite allotransplantation could have an immeasurable impact on the care of individual patients who could benefit from these procedures in the future.

Disclosure: Dr. Sarwer is currently a member of the Board of Directors of the American Board of Plastic Surgery. He has consulting relationships with Allergan, BARONova, Medtronic, and Novo Nordisk. Dr. Siminoff reported no disclosures.

As the field of vascularized composite tissue allograft transplantation continues to evolve, however, the present study should provide optimism regarding the ability to increase public willingness to donate swiftly and ethically through educational initiatives.

Eduardo D. Rodriguez, M.D., D.D.S.
Hansjorg Wyss Department of Plastic Surgery
New York University Langone Medical Center
305 East 33rd Street
New York, N.Y. 10016
eduardo.rodriguez@nyumc.org

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PATIENT CONSENT

Patient provided written consent for the usage of patient's images.

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