

# Knowledge and opinions about organ donation and transplantation among Vietnamese Americans in Seattle, Washington: a pilot study

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**Abstract:** Background: Racial/ethnic minorities comprise almost 50% of registrants on national waiting lists for organ transplantation in the USA. As the list continues to expand, organ shortage becomes a bigger problem. Increasing donation rates especially among racial minority groups would lower the waiting times for these groups.

**Purpose:** Asian Americans are among the fastest growing and most diverse ethnic group in the USA, but research on their knowledge or opinions about organ donation is rare.

**Population:** A non-random sample of 350 Vietnamese American church attendees and students attending a major university in Seattle (Washington), was drawn.

**Methods:** A self-administered 39-item knowledge/opinion-based survey was conducted during June to August 2003.

**Results:** Of 278 respondents (a 79.7% response rate), 69.1% knew blood-type made a difference in donation ( $p = 0.000$ ), 61.6% knew transplant survival rates were high ( $p = 0.000$ ), and 75.9% knew transplants could come from living donors ( $p = 0.000$ ). But 53.4% also thought organs could be sold for money in the USA ( $p = 0.000$ ), and 49.8% thought more people died of auto accidents and gunshot wounds than from heart disease ( $p = 0.000$ ). Those who answered correctly to more than 50% of the knowledge questions were also more likely to favor donation ( $p = 0.007$ ).

**Conclusion:** We found among this study population that having correct knowledge about organ donation related to a willingness to donate.

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**Key words:** Asian Americans – health education – minorities – organ donation – Vietnamese Americans

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Organ and tissue transplantation has become literally a lifesaving hope for many people. However, the organ donation rate, both living and cadaveric, has not followed the advance of medicine. The number of recipients on waiting lists for heart, kidneys, and other organs continue to expand. According to the Organ Procurement and Transplantation Network (OPTN), there are more than 86 000 persons on the national waiting lists. Between January and March 2004, only about 10% of transplants were performed. Of the more

than 152 000 registered donors, 57% were deceased and 43% are living. African Americans, Hispanics, and Asians comprised only about 12% of the deceased donors and 27% of the living donors. Racial/ethnic disparities in donation contribute in part to longer waiting times especially for minorities. For instance, the median waiting time for a kidney transplant in 1998–99 was 1468 d for African Americans, 1297 d for Hispanics, and 1487 d for Asians compared with only 917 d for Caucasians (1).

McNamara et al. (2) conducted more than 6000 telephone interviews and found that 43% of Whites were willing to donate organs after death, but only 31% of Hispanics and 27% of African Americans were willing to do so. Few such studies have assessed attitudes about organ donation among Native Americans, and Asian Americans and Pacific Islanders. Braun and Nichols (3), Joun et al. (4), and Lam and McCullough (5), reported that cultural and religious beliefs influenced some Asian Americans against organ donation. Spigner et al. (6) found Asian American and African American high school students significantly less likely to want to become organ donors than their non-Asian American and non-African American counterparts. Alden and Cheung (7) found Asian Americans generally held more negative attitudes about organ donation compared with European Americans. Yuen et al. (8) however, found overall that racial minorities supported organ donation but lacked sufficient knowledge about it. Morgan and Miller (9) observed that having awareness about organ donation might be less a problem in the general population than all the myths and misinformation that proliferates about the process. They urge better identification of target populations so that reasons for not donating can be directly addressed.

#### Population and purpose

Asian Americans and Pacific Islanders (AAPI) are the most diverse and the fastest growing of America's ethnic groups, yet relatively little is known about their health status and health beliefs (10, 11). The broad AAPI categories mask enormous ethnic differences within. For instance, more than 30 major languages or dialects are spoken under AAPI classification. As of year 2000, AAPI comprised 3.6% of the nation's 281 422 000 population, and 5.5% of Washington State's 5 894 000 residents were identified as AAPI (12). Vietnamese Americans were 1.6% of the 1 737 034 residents of King County, Washington State (13). This current study was undertaken to gain baseline information about organ donation and transplantation from a convenient sample of 278 Vietnamese Americans residing in Seattle, located in King County (Washington).

#### Material and methods

##### Questionnaire

Institutional Review Board approval was obtained from the University of Washington's Human

Subjects Division. Permission was then received from Vietnamese American members of a local Vietnamese Catholic church in Seattle, and from Vietnamese American students attending the University of Washington in Seattle. Most of the 39 questionnaire items were adapted from a school-based survey (6, 14–16). The questionnaire was self-administered to 350 church attendees and university students during the summer of 2003, and 278 were returned – a response rate of almost 80%. Questions 1–16 solicited general knowledge about organ donation and transplantation. Questions 17–24 addressed personal experiences with organ donation and transplantation, and questions 25–30 solicited positive and negative viewpoints about the issue. Questions 31–39 requested demographic information.

##### Analysis

Descriptive and inferential calculations were conducted using chi-squared analysis with the level of significant set at 0.05. Table 1 show demographic information. Table 2 assessed levels of knowledge and Table 3 shows measures of opinions about organ donation and transplantation. Table 4 assessed willingness to donate (i.e., positive and negative opinions) with level of knowledge (i.e. number of correct and incorrect responses). Table 5 shows willingness to donate relative to various demographic factors such as years lived in the USA, education, age, language spoken at home, language spoken every day, income, and religion. Table 6 ranked the concerns of those not willing to donate, and Table 7 ranked sources of information received about organ donation and transplantation. All analyses were performed using SPSS computer software.

#### Results

##### Demographic profile

As shown in Table 1, a total of 278 respondents completed the questionnaire. The average age was 31 yr, and 50.7% were females. Respondents reported having lived in the USA for an average of 10.9 yr, and almost three-fourths (74.7%) spoke mainly Vietnamese at home and more than half of them (53.1%) used it for everyday conversing. A slight majority (51.8%) were Catholic and over one-thirds (34.9%) were Buddhist. A majority (57.9%) had a college level education with an additional 8% at the professional level. However, 40.4% were unemployed, and 59.3% reported earning

Table 1. Demographics of Vietnamese American respondents

|                          | n = 278 (%) |
|--------------------------|-------------|
| Age in years (SD)        | 31 ± 11     |
| Years lived in USA (SD)  | 10.9 ± 5.8  |
| Gender                   |             |
| Males                    | 137 (49.3)  |
| Females                  | 141 (50.7)  |
| Language spoken at home  |             |
| Mainly Vietnamese        | 207 (74.7)  |
| English and Vietnamese   | 42 (15.2)   |
| Mainly English           | 28 (10.1)   |
| Total                    | 277         |
| Language spoken everyday |             |
| Mainly Vietnamese        | 147 (53.1)  |
| English and Vietnamese   | 50 (18.0)   |
| Mainly English           | 80 (28.9)   |
| Total                    | 277         |
| Religion                 |             |
| Buddhism                 | 95 (34.9)   |
| Catholicism              | 141 (51.8)  |
| Christianity             | 18 (6.6)    |
| Other                    | 18 (6.6)    |
| Total                    | 273         |
| Education                |             |
| High school and below    | 93 (34.1)   |
| College                  | 158 (57.9)  |
| Professional school      | 22 (8.0)    |
| Total                    | 273         |
| Occupation               |             |
| Unemployed               | 111 (40.4)  |
| Student                  | 58 (21.1)   |
| Factory worker           | 24 (8.7)    |
| Business                 | 33 (12.0)   |
| Health profession        | 28 (10.2)   |
| Other                    | 21 (7.6)    |
| Income                   |             |
| <\$20 000                | 156 (59.3)  |
| \$20 000 and \$40 000    | 89 (33.8)   |
| >\$40 000                | 18 (6.8)    |
| Total                    | 263         |

< \$20 000 per year. The 2000 USA Census statistics show 43.9% of AAPI attained a graduate level of education (17). Thus, our convenient sample was over represented with those with a higher level of educational, but also probably by low income and unemployed. Such differences, aside from our admittedly non-random selection procedures, might partially be explained by research from Barringer et al. (18) showing that except for Japanese Americans, many Asian Americans do not gain the same benefits of education as whites.

Table 2 shows responses to all the knowledge questions segmented by (i) composition of the waiting list, (ii) need for transplantation, (iii) fairness of the system, (iv) transplantation survival rates, and (v) knowledge about living donors. Each question shown ending with a 'T' if true and 'F' if false, followed by the percentage of 'correct,' 'incorrect,'

and 'do not know/blank' responses. At least 98.5% of participants answered each question.

#### Composition of waiting lists

As shown in Table 2, 69.1% of respondents were more likely to know that blood type made a difference in organ donation, compared with 13.7% who responded incorrectly and 17.3% who did not know or did not respond. Slightly less than one-half (47.5%) of respondents were more likely to not know or leave blank their response to the statement that African Americans waited longer for kidney transplants, compared with 27.7% who correctly knew this statement to be true and 24.8% who responded incorrectly. Moreover, 43.7% of respondents were more likely to be unaware of the fact or respond that Asian Americans waited longer for kidney transplants, compared with 26.5% who knew the statement to be true and 29.7% who responded incorrectly. Moreover, 44.2% of respondents were more likely to not know or not answer that most organs received by people-of-color came from Caucasians, compared with 23% who correctly knew this was true and 32.9% who incorrectly thought the statement was false. Further, 47.3% of respondents were more likely to not know or not respond to the statement that almost one-half of those on the organ waiting list was racial minority, compared with 27.3% who correctly knew this to be true and 25.5% who incorrectly thought the statement was false.

#### Need for organs

Interestingly, almost 40% of respondents were more likely to think that people would not need a transplant if they took better care of themselves with an almost equal percentage (39.4%) who correctly knew this statement to be false, compared with 12.3% who significantly either did not know or did not respond. Moreover, 49.8% of respondents were more likely to believe incorrectly that more people die of automobile accidents and gun shot wounds than from heart disease, compared with 27.8% who knew this statement was false and 22.4% who did not know and did not respond.

#### Fairness of the allocation system

Equal percentages of respondents were more likely to believe (45.1%) and not believe (45.1%) that a national computer system matched and distributed donated organs to the sickest and who

Table 2. Baseline knowledge of organ donation and transplantation

| Questions  | Correct [n (%)] | Incorrect [n (%)] | Do not know/Blank [n (%)] | Total (n) |
|--|-----------------|-------------------|---------------------------|-----------|
| Composition of organ waiting list  |                 |                   |                           |           |
| 2. Almost one-half waiting in USA are minorities (T)   | 75 (27.3)       | 70 (25.5)         | 130 (47.3)                | 275       |
| 3. African Americans wait longer for kidney transplants than whites (T)  | 77 (27.7)       | 69 (24.8)         | 132 (47.5)                | 278       |
| 4. Asians wait longer for kidney transplants than whites   | 74 (26.5)       | 83 (29.7)         | 122 (43.7)                | 278       |
| 5. Blood type does not make difference (F)   | 192 (69.1)      | 38 (13.7)         | 48 (17.3)                 | 278       |
| 6. Most organs received by people of colour are donated by whites (T)  | 64 (23)         | 91 (32.7)         | 123 (44.2)                | 278       |
| Who may need an organ transplant   |                 |                   |                           |           |
| 7. People won't need a transplant if they take better care of themselves (F)   | 134 (48.4)      | 109 (39.4)        | 34 (12.3)                 | 277       |
| 8. More people die from auto accident and gun shot wounds than heart disease (F)   | 77 (27.8)       | 138 (49.8)        | 62 (22.4)                 | 277       |
| Fairness of the organ allocation system  |                 |                   |                           |           |
| 10. In the past 5 yr, local transplant program has turned away patients due to and inability to pay (F)                        | 38 (13.6)       | 79 (28.3)         | 162 (58.1)                | 278       |
| 11. A national computer system matches and distributes donated organs to the sickest & those who have been waiting longest (T) | 124 (45.1)      | 125 (45.1)        | 27 (9.7)                  | 277       |
| 14. Sometimes, organs can be sold for money in the US (F)  | 68 (24.4)       | 149 (53.4)        | 62 (22.2)                 | 278       |
| 15. Rich and famous people can receive organs before people with the most need (F)   | 112 (40.1)      | 108 (38.7)        | 59 (21.1)                 | 278       |
| Transplant survival rates and results  |                 |                   |                           |           |
| 1. Transplant survival rates today are very high (T)   | 172 (61.6)      | 26 (9.3)          | 81 (29.0)                 | 278       |
| 12. Transplant recipients can live more than years (T)   | 133 (40.6)      | 40 (14.4)         | 125 (45.0)                | 278       |
| 13. The patients chances of surviving a transplant operation today is pretty low (F)   | 145 (52.0)      | 48 (17.2)         | 86 (30.8)                 | 278       |
| 16. A transplant operation has <50/50 chance of allowing the recipient to return to normal activities (F)                      | 76 (27.4)       | 89 (32.1)         | 112 (40.4)                | 277       |
| Living donations   |                 |                   |                           |           |
| 9. A patient can receive an organ transplant from a living donor (T)   | 211 (75.9)      | 25 (9.0)          | 42 (15.1)                 | 278       |

Table 3. Opinions about organ donation and transplantation

|  | n (%)      |
|--|------------|
| Opinions about donating organs                                 |            |
| 1. I am already a registered donor.                            | 80 (29.7)  |
| 2. I would like to become an organ donor.                      | 58 (21.6)  |
| 3. I am considering it but need more time to think about it.   | 64 (23.8)  |
| 4. I am undecided about organ donation                         | 38 (14.1)  |
| 5. It's a good thing to do but not for me.                     | 14 (5.2)   |
| 6. I don't want to be an organ donor                           | 15 (5.6)   |
| Total  | 269 (96.7) |
| Opinions about transplantation                                 |            |
| 1. I would want the opportunity to get an organ if I needed it | 243 (91.4) |
| 2. I would rather die than have an organ transplant operation  | 23 (8.6)   |
| Total  | 266 (95.7) |

have been waiting the longest, compared with 9.7% who did not know or did not respond. However, 58.1% of respondents were also more likely to not know or not respond to the statement: 'In the past 5 yr, the local transplant program has turned away about 30% of patients because of an inability to pay,' compared with 13.6% who correctly knew this was false, and 28.3% who incorrectly thought the statement was true. Moreover, 21.1% of respondents were less

likely to either not know or not respond to whether the rich and famous could receive organs before others with the most need although 38.7% falsely believed they could and an almost equal percentage (40.1%) correctly knew the statement to be untrue. Further, 53.4% were more likely to believe that sometimes organs can be sold for money, compared with 24.4% who correctly knew this statement was untrue and 22.2% who did not know or did not respond.

Transplantation survival

The 61.6% of respondents were more likely to correctly know that transplant survival rates were high, compared with only 9% who incorrectly thought the opposite and 29% who did not know or did not respond. In addition, 52.0% were more likely to know that: 'Patients chance of surviving a transplant operation is pretty low' was a false statement, compared with 17.2% who incorrectly thought it was true and 30.8% who did not know or did not respond. Moreover, 40.4% were more likely to not know or not respond to the untrue statement that a transplant recipient had < 50/50 chance of returning to normal activities, compared with 27.4% who correctly knew this was false, and

32.1% who incorrectly thought the statement was true. Finally, 45% were less likely to be unaware of the fact that a transplant recipient can live more than 10 yr after the transplant, although 40.6% knew this compared with only 14.4% who did not. Overall, 75.9% of respondents were more likely to know that a patient can receive an organ transplant from a living donor, compared with only 9% who did not think so and 15.1% who did not know or did not respond.

Opinions about donation

As shown in Table 3, of the 269 (96%) who responded to our six-part opinion-based question about organ donation and transplantation, 29.7% had already signed an organ donor card; 21.6% indicated that they would like to become a donor; 23.8% were ‘considering it but needed more time to think about it’; 14.1% were undecided; 5.2% stated organ donation was ‘a good thing but not for me’; and 5.6% definitely did not want to be an organ donor. Combining the first two responses suggest that more than one-half or 51.3% of respondents, were more positively inclined toward organ donation. In two follow-up questions; 91.4% of the total reported that they would want the opportunity to receive a transplant if needed. The remaining 8.6% responded that they ‘would rather die than have an organ transplant operation.’

Knowledge and donation

Table 4 show relationships between knowledge (from Table 2) and opinions (from Table 3) about organ donation and transplantation. The 16 knowledge-based statements were categorized into a binominal variable by those with less than one-half correct responses (eight or less) and those with more than one-half correct responses (nine or more). The six opinion-based statements were also categorized into a bi-nominal, with responses to the first two questions indicative of a ‘willingness to donate’ and responses to the last four were indicative of a ‘non-willingness to donate.’ Cross

tabulations were then calculated. Of the 53 respondents who provided nine or more correct responses, we found that a greater percentage (13.4%) were already ‘registered donors’ and ‘wanted to become donors’ compared with the only 6.3% of respondents who reported that they were ‘considering,’ ‘undecided,’ ‘thinking about it,’ and did ‘not want to be donors’ (p = 0.007). This finding suggests that those with more correct knowledge about organ donation and transplantation also seem more inclined toward donation.

Demographics and concerns

In Table 5, respondents who lived in the USA the longest and with more education seemed inclined toward donation (p = 0.000 and p = 0.001, respectively). Additional demographic characteristics show the younger (p = 0.065) and the higher income (p = 0.065) seemed to favor organ donation, although the significance levels were not strong.

Table 6 shows a ranking of reasons respondents did not want to become organ donors. With 109 or 83.2% of the total sample responding, 28% ranked being afraid of surgery and 28% also ranked wanting their body to remain whole after death was both tied as the number one reasons for concern about organ donation and transplantation. Interestingly, Spigner et al. (6) also found that wanting the body to remain whole after death was significant for Asian American high school students in part of a similar study carried out earlier in the same city.

Sources of information

Table 6 ranked the sources of information respondents received about transplantation and donation. Television ranked highest with 62 and 58%, followed by friends at 43 and 39%, schools 36 and 35%, and newspapers and magazines 36 and 30%, respectively. Of concern perhaps are pamphlets and brochures which are rather extensively for education outreach by organ procurement organizations ranked a distant ninth, with only

Table 4. Knowledge and willingness to donate

|                     | n (%) Registered/<br>Want to donate | n (%) Considering/<br>Undecided/<br>Do not want to | Total sample | Chi-squared test | Test statistic |
|---------------------|-------------------------------------|--|--------------|------------------|----------------|
| Knowledge questions |                                     |  |              | 7.301            | 0.007          |
| <50% correct        | 102 (37.9)                          | 114 (42.4)   | 216          |                  |                |
| >50% correct        | 36 (13.4)                           | 17 (6.3)   | 53           |                  |                |
| Total               | 138 (51.3)                          | 131 (48.7)   | 269          |                  |                |

Table 5. Willingness to donate with years lived in USA and education

|                          | n (%) Registered/<br>Want to donate | n (%) Undecided/<br>Considering/<br>Do not want to | Total | Chi-squared test | Test statistics |
|--------------------------|-------------------------------------|--|-------|------------------|-----------------|
| Years lived in USA       |                                     |  |       | 20.004           | 0.000           |
| 1-5                      | 11 (4.2)                            | 23 (8.9)   | 34    |                  |                 |
| 6-10                     | 51 (19.7)                           | 70 (27.0)  | 121   |                  |                 |
| 11-15                    | 46 (17.8)                           | 20 (7.7)   | 66    |                  |                 |
| >16                      | 24 (9.3)                            | 14 (5.4)   | 38    |                  |                 |
| Total                    | 127 (49.0)                          | 132 (51.0)   | 259   |                  |                 |
| Education                | 14.795                              | 0.001  |       |                  |                 |
| High school or less      | 35 (13.3)                           | 51 (19.3)  | 86    |                  |                 |
| College                  | 82 (31.1)                           | 74 (28.0)  | 156   |                  |                 |
| Professional school      | 19 (7.2)                            | 3 (1.1)  | 22    |                  |                 |
| Total                    | 136 (51.5)                          | 128 (48.5)   | 264   |                  |                 |
| Age                      |                                     |  |       | 7.243            | 0.065           |
| 18-24                    | 44 (16.7)                           | 47 (17.9)  | 91    |                  |                 |
| 25-30                    | 46 (17.5)                           | 27 (10.3)  | 73    |                  |                 |
| 31-39                    | 27 (10.3)                           | 28 (10.6)  | 55    |                  |                 |
| >40                      | 17 (6.5)                            | 27 (10.3)  | 44    |                  |                 |
| Total                    | 134 (51.0)                          | 129 (49.0)   | 263   |                  |                 |
| Language spoken at home  |                                     |  |       | 2.188            | 0.335           |
| Vietnamese mainly        | 97 (36.2)                           | 102 (38.1)   | 199   |                  |                 |
| Vietnamese/English       | 23 (8.6)                            | 19 (7.1)   | 42    |                  |                 |
| English mainly           | 17 (6.3)                            | 10 (3.7)   | 27    |                  |                 |
| Total                    | 137 (51.1)                          | 131 (48.9)   | 268   |                  |                 |
| Language spoken everyday |                                     |  |       | 4.252            | 0.119           |
| Vietnamese mainly        | 63 (23.5)                           | 76 (28.4)  | 139   |                  |                 |
| Vietnamese/English       | 27 (10.1)                           | 23 (8.6)   | 50    |                  |                 |
| English                  | 47 (17.5)                           | 32 (11.9)  | 79    |                  |                 |
| Total                    | 137 (51.1)                          | 131 (48.9)   | 268   |                  |                 |
| Income                   |                                     |  |       | 5.465            | 0.065           |
| <\$20 000                | 74 (28.9)                           | 78 (30.5)  | 152   |                  |                 |
| \$20 000-40 000          | 45 (17.6)                           | 41 (16.0)  | 86    |                  |                 |
| >\$40 000                | 14 (5.5)                            | 4 (1.6)  | 18    |                  |                 |
| Total                    | 133 (52.0)                          | 123 (48.0)   | 256   |                  |                 |
| Religion                 |                                     |  |       | 3.2              | 0.351           |
| Buddhism                 | 51 (19.5)                           | 43 (16.4)  | 94    |                  |                 |
| Catholicism              | 66 (25.2)                           | 69 (26.3)  | 135   |                  |                 |
| Christianity             | 7 (2.7)                             | 10 (3.8)   | 17    |                  |                 |
| Other                    | 11 (4.2)                            | 5 (1.9)  | 16    |                  |                 |
| Total                    | 135 (51.5)                          | 127 (48.5)   | 262   |                  |                 |

13% for information about transplantation and 8% for information about donation in our study.

**Discussion**

Studies tend to show that the more educated members of society are inclined toward organ donation (19, 20). Almost 66% of our convenient sample of Vietnamese Americans in Seattle, Washington, reported having attained a college and professional level of education (Table 1). This higher level of education could account for over one-half (51.3%) of the sample reporting more of an inclination to donate organs (Tables 3 and 4). Still, many respondents also exhibited much incorrect knowledge about the subject, and the many ‘do not know’ or blank responses (Table 2) suggest a need for better health educa-

tion outreach campaigns about this important issue.

Our convenient sample demonstrated correct knowledge about organ donation and transplantation. They were more likely to know the need to match blood-types between donor and recipient, and to know that transplantation survival rates were high. But they were generally less aware about the organ donation process; for instance, some believed that in the USA, organs could be sold for money, and that transplant patients could be turned away because of an inability to pay, suggesting a lack of knowledge that kidney transplantation is funded under Medicaid entitlement. Many respondents also did not know that Asian Americans as well as African Americans had to wait longer for kidney transplants (Table 2). Interestingly, 48.4% believed that transplants

Table 6. Concerns about organ donation and transplantation

|   | n (%)   | Rank |
|---|---------|------|
| Statement options                         |         |      |
| I'm afraid of the surgery                 | 30 (28) | 1    |
| The body should remain whole              | 30 (28) | 1    |
| Don't want to think about dying           | 23 (21) | 2    |
| I don't trust doctors enough to donate    | 15 (13) | 3    |
| My organs would go to the rich and famous | 6 (5.5) | 4    |
| It's against my religion                  | 5 (4.5) | 5    |
| Total                                     | 109     |      |

Table 7. Sources of Information about organ transplantation and donation

| Source                   | % Transplantation | Rank | % Donation | Rank |
|--------------------------|-------------------|------|------------|------|
| Television               | 62                | 1    | 58         | 1    |
| Friends                  | 43                | 2    | 39         | 2    |
| School                   | 36                | 3    | 35         | 3    |
| Newspaper/Magazines      | 36                | 3    | 30         | 4    |
| Book                     | 30                | 4    | 26         | 5    |
| Movie                    | 29                | 5    | 24         | 6    |
| Internet                 | 27                | 6    | 24         | 6    |
| Radio                    | 20                | 7    | 23         | 7    |
| Family                   | 21                | 8    | 19         | 8    |
| Pamphlet/Brochures       | 13                | 9    | 8          | 9    |
| Church                   | 7                 | 10   | 5          | 12   |
| Other                    | 6                 | 11   | 8          | 10   |
| Never heard of the topic | 6                 | 12   | 6          | 11   |

would not even be needed if people took better care of themselves (Table 2). The sentiment suggests values of self-reliance, which are laudable. But many diseases that require the need for an organ transplant does not always stem from personal irresponsibility. For instance, Ghosh (10) has pointed out that Vietnamese, in particular, have liver cancer rates at 11.3 times that of whites. Moreover, 91.4% of respondents reported that they would want a transplant if they needed one (Table 3).

The 29.7% who reported that they were already registered donors is an interesting finding. The most recent state-level data for Washington show that among registered living donors, the broad population of 'Asians' were only 3.7%, compared with whites at 83.4%, blacks 3.5% and Hispanics 4.5%. Among deceased donors; Asians were 3%, whites 87.2%, blacks 2.3% and Hispanics 3.8% (1). The OPTN's category of 'Asian' does not distinguish Vietnamese Americans or any other ethnic-specific group, for that matter. Thus, the 29.7% of Vietnamese Americans we found to be registered donors would be a much more meaningful statistic if compared with other ethnic-specific groups within that exceedingly broad

'Asian' category. We readily recognize the important of employing large randomly selected sample sizes to make such a finding more meaningful. Researchers must employ greater effort in accounting for ethnic-specificity *within* designated 'racially defined' groups in the USA.

Some responses were ambiguous. Statements shown in Table 6, for example, solicited concerns had about the organ donation and tissue transplantation process. However, the first statement option: 'I'm afraid of the surgery' does not distinguish between being a recipient or a donor, although the context is clearly about living donations. The second statement option: 'The body should remain whole' could refer to one's own dead body or the dead body of another. The third statement: 'Don't want to think about dying' is future oriented and assumes the respondent is living. The fourth statement: 'I don't trust doctors enough to donate' could refer to being alive or dead. Responses to: 'My organ would go to the rich and famous,' and 'It's against my religion' could also be within the context of being alive or dead.' These responses should be viewed with caution, although we think they provide a baseline for constructing further studies and to establish culturally sensitive education about organ donation and tissue transplantation (9).

Television ranked as the top source of information about organ donation and transplantation (see Table 7). Spigner et al. (6) found television ranked as the prime channel of information among their high school samples. Guadagnoli et al. (21) observed that television and movies were important informational sources for measuring the effectiveness of family discussions about organ donation. Morgan and Miller (9) and Spigner et al. (6) have cautioned, however, that television shows of the last decade such as *The X-Files* and *Star Trek: Voyager*, both now defunct but still popular in reruns, and such made-for-TV movies as the farfetched updated Hong Kong martial arts' version of *Dr. Jekyll & Mr. Hyde* released in 1999, can foster distorted imagery and spread misinformation about organ donation. We did not solicit what kind of television shows our respondents watched, but with equal percentages believing that the rich and famous can (and cannot) receive organs over those on the waiting lists, could be a reflection of that medium's overwhelming focus on the rich and famous. Motion pictures ranked fifth as a source of information about transplantation and sixth for donation. Popular films such as *Return to Me*, released in year 2000 and *John Q*, released in 2002, have romanticized and made sensational the transplantation and organ donation process. More

rigorous content analysis of television and movies is needed to assess their influence, if any, on such public perceptions about organ donation and transplantation.

Schools ranked third as sources of information (Table 7). School-based education might have accounted for much of the correct knowledge we found among respondents (Table 4), but this is pure speculation on our part. We do not know where the 53 respondents who reported nine or more correct answers to the 16 knowledge-based questions got their information. Nevertheless, we believe school-based settings are optimal for educating people, especially the young, about organ donation and transplantation. It is the very mission of the educational institution to dispense facts and clear-up misinformation (6, 14–16). Yet, the schoolroom is not the most sufficient vehicle for reaching the overall population, as has been pointed out by Morgan and Miller (9). But we think it's a good place to start.

### Limitations

This study had several limitations. Ours was a convenient sample. The questionnaire was adapted from one previously used with high school students in the area (6, 16). We agree to the fact pointed out by Morgan and Miller (9) that too many such studies are performed on student samples and not the general population. Only 21.1% of our respondents self-identified as students (see Table 1). Studies need to employ measurement instruments that have been validated for the general population. In fact, it remains to be seen if such willingness to donate models advanced by Horton and Horton (22) and Kopfman and Smith (23) have been validated for more cultural or ethnic-specific groups as Vietnamese Americans. Acculturation is an important and complex variable (24) that needed to be evaluated which we did not do in this study. We did find that those Vietnamese Americans who reported living in the USA the longest seemed more inclined to donate their organs (Table 5).

### Conclusion

We make no definitive claims about the levels of knowledge or opinions Vietnamese Americans in Seattle (Washington) have about organ donation and transplantation. But personal health beliefs (25) information remains so inadequate that perhaps our findings can help bridge the gap. Our overall conclusion is that Vietnamese Americans are not less likely to donate organs because they are minor-

ities, but because they do not have enough correct knowledge about the subject. Recall that 51.3% of our sample was positively inclined toward organ donation (Table 3). Still, cultural barriers to having access to appropriate health education information remain real (3, 5, 11), and we believe they can be overcome (26). Health professionals, and especially organ procurement organizations, must take a much more proactive role and a community-based participatory approach (27). Moreover, spiritual beliefs (5), culture and family (6, 28), and even previous hospital experiences of family members (29) must be considered if organ donation is to be increased.

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