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# Organ Donation Among Tiers of Health Workers: Expanding Resources to Optimize Organ Availability in a Developing Country

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The global increase in end organ failure but disproportional shortage of organ donation calls for attention. Expanding the organ pool by assessing and improving health workers' attitude at all levels of care may be a worthwhile initiative. **Methods.** A questionnaire-based cross sectional study involving tertiary, secondary, and primary health institutions in Southwestern Nigeria was conducted. **Results.** Age range was 18 to 62 ( $36.7 \pm 9.2$ ) years. Only 13.5%, 11.7%, and 11.2% from primary, secondary, and tertiary health centers, respectively, would definitely donate despite high level of awareness (>90%) at each level of care. Participants from primary health care are of low income ( $P < 0.05$ ), and this cohort is less likely to be aware of organ donation ( $P < 0.05$ ). At each level of care, permission by religion to donate organs influenced positive attitudes (willingness to donate, readiness to counsel families of potential donors, and signing of organ donation cards) toward organ donation. Good knowledge of organ donation only significantly influenced readiness to counsel donors ( $P < 0.05$ ) and not willingness to donate ( $P > 0.05$ ). At each level of health care, young health care workers ( $P < 0.05$ ) and women ( $P > 0.05$ ) would be willing to donate, whereas men show positive attitude in signing of organ donor cards ( $P < 0.05$ ) and counseling of families of potential donors ( $P > 0.05$ ). **Conclusions.** Knowledge and willingness to donate organs among health care levels were not different. Considering the potential advantage of community placement of other tiers of health care (primary and secondary) in Nigeria, integrating them would be strategically beneficial to organ donation.

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There is a global rise in chronic diseases and consequently, end organ failure has been correspondingly increasing with many victims requiring organ transplantation for improved quality of life and survival.<sup>1,2</sup> Increased prevalence of diabetes, hypertension and infection, and change in epidemiologic and demographic characteristics has led to an increasing number of people with end-stage renal failure.<sup>3</sup> In Nigeria, Arogundade et al<sup>4</sup> reported an exponential increase in end stage renal disease over less than 2 decades. In their report, the outcome of kidney transplantation was comparable to developed countries but highly constrained by shortage of

donors because 143 transplants were done by 5 centers over 10 years. The most reliable modality to manage end-stage kidney failure is transplantation. The cost of other modalities of renal replacement therapy is unbearable with abysmal outcomes, especially over a long period. Increasing organ donations (ODs) for transplantation is paramount to meeting this expanding population of people with end-stage organ failure.

Health care workers (HCWs) are indispensable to a successful transplantation program. Surprisingly, studies have shown lack of awareness and commitment, misconceptions, and superstitious belief not only among the general lay public

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but also, worriedly, among health workers,<sup>5,6</sup> who are to be the harbinger and change agents of OD. An unmotivated and uninformed health worker<sup>7,8</sup> would fail to pass adequate information that would convert an unwilling or undecided donor or relations of donors to accepting OD whether living or cadaveric. This endangers a successful transplantation program as information passed to patients by health workers regardless of their roles and responsibilities are likely to be taken wholly without any doubt.

Each country or region is to domesticate its own strategy to increase OD to meet its demand.<sup>9</sup> The success recorded in Spain<sup>10</sup> and Portugal<sup>11</sup> was not without the significant contribution and cooperation of informed and well-educated health workers through creation of awareness and regular training. Nigeria is a multisociocultural nation with different religious and ethical principles. Transplantation in the country has occurred through the isolated efforts of tertiary health institutions with good outcome, but there has been less success in the supply of organs. The program is limited to living donation, and there is no appreciative effort from the government to coordinate organ transplantation. There is therefore a need to agitate for additional sources of organ supply to boost the available one. Adding cadaveric OD also has multiple effects because the standard of health care would also improve.

Primary and secondary health care centers demonstrate remarkable optimistic interaction with community dwellers<sup>12,13</sup>; involving other tiers of health care in OD is therefore worth studying. Harnessing the community by creating awareness is crucial to increasing the yield of organs, both living and cadaveric, for donation. Information passed in the relaxed environment of primary and secondary health care centers tends to be more easily accepted<sup>14</sup> and may be a good avenue for promoting OD.<sup>15,16</sup> Organ donation is an important feature of comprehensive health services<sup>3,12</sup> which could be rendered starting from the primary health care level. According to World Bank Data, rural communities in Nigeria constitute about 54%, and in most of them, primary health care is the only available facility. With good coordination and integration, bringing on board the other levels of health care is a potential opportunity to expand OD program.<sup>17,18</sup>

Health service is a longitudinal activity in which an individual attended to at the primary health care level is potentially a candidate for tertiary centers. In Saudi Arabia, the organ procurement center coordinates the activities of both the organ donating and organ transplant centers<sup>19</sup> through well-motivated, trained, and well-informed HCWs at these various levels. Therefore, to increase the yield of organs, all levels of health care are essential as good information ambassadors to patients at the various level of health care and should be seen to be without incongruity.

As baseline information, we therefore set out to know the knowledge, attitude, and behavior of health workers at various levels in Nigeria toward OD, and we also intend to know if there is any disparity in their characteristics regarding OD.

## MATERIALS AND METHODS

We conducted a cross-sectional study. The study was conducted in 2 tertiary health institutions, 2 secondary (general hospitals) health institutions, and 4 primary health centers in the Osun and Ekiti states of Nigeria. There are 2 teaching hospitals each in Osun and Ekiti States. In Osun state, one is

a transplant center and the other is a nontransplant center, whereas in Ekiti State, the 2 centers were nontransplant centers. The selected hospitals were nontransplant centers but in the radius of about 80 to 100 km to transplant centers. The period of the study was between January and June, 2012 to commemorate World Kidney day.

There were 4 sections to the questionnaire used. The sections were to gather information on sociodemographic characteristics, awareness and knowledge of OD (living and cadaveric), belief, and attitude toward OD. Informed consent was taken from each of the participants before being allowed to fill the forms. All the participants self-administered the questionnaires anonymously.

We classified income as low ( $\leq$  US \$200), medium (US \$200-\$500), and high (US \$ > 500) based on the participants' monthly income at the 3 levels (exchange rate of ₦160 to a US dollar). Level of education was classified as high if participant had secondary school education or higher while it is low if participants did not complete secondary school. The knowledge of the respondents was assessed as "little (<50%) or good ( $\geq$ 50% of total score)" through weighted scores from questions regarding meanings and awareness of the terms "organ donation," risks and effectiveness of OD, legislation, and consents in OD. Attitudes of the HCWs were assessed as "positive or negative" with questions on readiness to donate, influence of religion, who the participants would like to donate organ to, and the most important factor to consider before donating such organs. The practice or action of the participants was assessed with questions on whether they have seen anybody who donated, whether they would discuss OD with the family of a potential donor, signing of OD card if available, and whether their own family will allow their organ to be donated.

The study was approved by the ethics and research committees of the hospitals.

## ANALYSIS

Data analysis was done using Statistical Package for Social Sciences (SPSS 20). Variables such as income, education and level of knowledge were stratified into dichotomous. Descriptive statistics were used to assess sociodemographic characteristics. We generated dichotomous variables, such as high and low income, education and level of knowledge by quantifying the scores. The 3 groups of health workers were compared using analysis of variance,  $\chi^2$  test, independent *t* test. Relationship between categorical variables was assessed using  $\chi^2$  test. A level of statistical significance of 0.05 was used.

## RESULTS

The total number of health workers recruited was 850 but 766 returned their complete questionnaires. Participants from tertiary, secondary, and primary health care institutions constituting 307 (40.1%), 229 (29.9%), and 230 (30%), respectively. Men constituted 12.8% of the participants (Table 1). The age range of all the participants was 18 to 62 ( $36.7 \pm 9.2$ ) years with tertiary HCWs having the highest mean age of  $41.58 \pm 9.02$  years ( $P = 0.001$ ).

With regard to awareness of OD, 214 (93%), 213 (93%), and 288 (93.8%) have heard in primary, secondary, and tertiary health care levels, respectively ( $P = 0.917$ ). Majority, 149 (68.8%), 143 (67.1%), and 197 (68.4%) from primary, secondary, and tertiary care, respectively, heard about OD through multiple sources, such as internet, television, radio,

**TABLE 1.**  
Sociodemographic characteristics of the participants from the 3 levels of health care

| Variables      | Primary    | Secondary  | Tertiary   | P     |
|----------------|------------|------------|------------|-------|
| Sex            |            |            |            |       |
| Male           | 32 (10.4)  | 28 (12.2)  | 27 (11.7)  | 0.805 |
| Female         | 275 (89.6) | 201 (87.8) | 203 (88.3) |       |
| Marital status |            |            |            |       |
| Married        | 266 (86.6) | 193 (84.3) | 199 (86.5) | 0.701 |
| Single         | 41 (13.4)  | 36 (15.7)  | 31 (13.5)  |       |
| Income         |            |            |            |       |
| Low            | 3 (1.9)    | 2 (1.6)    | 2 (1.6)    | 0.947 |
| Medium         | 84 (53.5)  | 75 (58.6)  | 69 (56.1)  |       |
| High           | 70 (44.6)  | 51 (39.8)  | 52 (42.3)  |       |
| Education      |            |            |            |       |
| Low            | 24 (7.8)   | 20 (8.7)   | 19 (8.3)   | 0.917 |
| High           | 283 (92.2) | 209 (91.3) | 211 (91.7) |       |
| Religion       |            |            |            |       |
| Christianity   | 250 (81.4) | 189 (82.5) | 190 (82.6) | 0.935 |
| Islam          | 57 (18.6)  | 40 (17.5)  | 40 (17.4)  |       |

and newspaper, whereas at the respective care levels, 13.1%, 14.1% and 13.9% heard about OD from doctors only. Participants who were not aware of OD were more from primary health care centers, and they were low income ( $P = 0.001$ ) earners and had the least level of education ( $P = 0.001$ ).

More men than women would sign OD cards and counsel for OD ( $P < 0.05$ ) (Table 2). However, there is no statistical difference among the various levels of care. More women were willing to donate in tertiary than secondary and primary, respectively. Two hundred seventy-one (94.1%) of HCWs in tertiary centers knew that ODs save life, whereas 92.5% and 90.7% in secondary and primary health care levels, respectively, shared same opinion ( $P = 0.347$ ).

More Christians than Muslims believed their religion permitted OD (66.5% vs 45.9%;  $P = 0.001$ ) and would be willing to donate (88.7% vs 59.7%;  $P = 0.001$ ). At each level of care, health workers that had the permission of their religion (82.2% vs 79.4% vs 77.6%) would want to donate and discuss OD with potential donors ( $P < 0.05$ ). Being permitted by religion to donate is significantly associated with signing of OD cards only at the tertiary care level.

Knowledge score of OD was higher, although not statistically significant, in tertiary ( $7.96 \pm 1.92$  vs  $7.80 \pm 1.91$  vs  $7.71 \pm 1.97$ ;  $P = 0.33$ ) than secondary and primary. Higher level of education is positively associated with higher knowledge score of OD within each level of care (86.3% vs 52.9%, 83.9% vs 57.1%, 82.6% vs 46.2%;  $P = 0.001$ ). Participants with higher income have better knowledge of OD at each level of care (86.2% vs 79.5, 84.9% vs 76.1%, 82.9% vs 74.2%,  $P = 0.001$ ) but not among the 3 levels of care. Being permitted by religion and belief that transplantation is effective are significantly associated with better knowledge of OD at each level of care ( $P < 0.05$ ).

The HCWs who knew somebody who had donated organ ( $P = 0.001$ ) or waiting for transplantation ( $P = 0.001$ ) also have high knowledge score. However, there is no significant difference among levels of care (Table 2).

The HCWs at each level of care who were willing to donate ( $35.5 \pm 8.4$  vs  $37.6 \pm 9.4$  years,  $P = 0.003$ ) and discuss

OD ( $35.7 \pm 8.8$  vs  $37.5 \pm 9.4$  years,  $P = 0.018$ ) with the patients or relations of potential donors were younger than their counterparts. However, those that would be ready to sign OD cards were older ( $37.2 \pm 9.4$  vs  $36.8 \pm 9.1$ ) but not statistically significant.

In Table 2, only 39.5%, 22.6%, and 33.3% with good knowledge of OD will sign donation card, counsel potential donors, and donate, respectively, in tertiary level ( $P = 0.001$ ). Within each level of care (Figure 1), majority (44.8% vs 45.1% vs 45.8%) were HCWs who were not decided and would like to go and think about whether to donate organ or not. Meanwhile, only 13.5%, 11.7%, and 11.2% from primary, secondary, and tertiary health centers would definitely donate, respectively, regardless of any consideration.

The proportion of those that would like to donate despite full awareness of the risks was not significantly higher in tertiary health care than secondary and primary (86.3% vs 84.8% vs 81.3%) health care levels. However, of those that would be willing to donate, 45.9%, 42.3%, and 36.5% would be ready to sign OD from tertiary, secondary, and primary care levels, respectively ( $P = 0.465$ ). In Figure 2, among HCWs with good knowledge of OD, only 20% would be willing to donate, whereas 80% will likely counsel potential donors. Within the cohorts of HCWs that would counsel relations and potential donors, only 20.2%, 20.3%, and 16.9% from tertiary, secondary, and primary care levels would be willing to sign OD cards if asked to do so ( $P = 0.886$ ).

## DISCUSSION

To achieve success in OD, the responsibility should not only be confined to a particular group of health workers but also cut across the various tiers of health care because this may encourage collaboration. Despite awareness and a good level of knowledge observed in this survey, only 1 of every 10 HCWs was willing to donate. However, within the cohorts of HCWs with good knowledge of OD, this increased to about 20% of HCWs willing to donate. Knowledge of OD predicts willingness to donate.<sup>13,20</sup> McLeod<sup>21</sup> described the components of attitude as affective, behavioral and cognition, and that these must be premised on appropriate information to improve knowledge and produce positive or negative attitude. Further expressed by Siminoff et al<sup>22</sup> was that belief of HCWs that OD would benefit the donor family leads to success in obtaining consent because attitude predicts behavior. Inappropriate information will encourage poor disposition and result in negative attitude. Knowledge influences actual and intent willingness to donate. There is a great need therefore to disseminate appropriate information that will increase knowledge and motivate health care personnel toward OD.

Interestingly, almost half of health personnel in this study were still undecided as to whether they will donate or not, and this was observed at all levels of health care. Adequate information and training to bolster favorable attitudes through expansion of knowledge would likely convert this proportion of health workers.<sup>23</sup> Focus should be on reassessment of the present level of knowledge, then consolidate and encourage the positive aspects with explicit and accurate information to debunk fears, myths, and concerns of HCWs about OD at all levels. Efforts should be tailored toward changing them over to favor OD. Eagly and Chaiken<sup>24</sup> on strength of attitude

**TABLE 2.****Sociodemographic characteristics of participants and attitude toward organ donation**

| Sex                    | Sign organ donation card | P     | Discuss organ donation | P     | Donate organ | P     |
|------------------------|--------------------------|-------|------------------------|-------|--------------|-------|
| A                      |                          |       |                        |       |              |       |
| Male                   | 16 (69.6)                |       | 16 (69.6)              |       | 7 (30.4)     |       |
| Female                 | 93 (35.1)                | 0.002 | 68 (25.7)              | 0.000 | 83 (31.3)    | 0.93  |
| B                      |                          |       |                        |       |              |       |
| Male                   | 14 (70.0)                |       | 16 (80.0)              |       | 4 (20.0)     |       |
| Female                 | 64 (33.2)                | 0.002 | 53 (27.5)              | 0.000 | 59 (30.6)    | 0.324 |
| C                      |                          |       |                        |       |              |       |
| Male                   | 14 (66.7)                |       | 17 (81.0)              |       | 3 (14.3)     |       |
| Female                 | 60 (31.1)                | 0.002 | 48 (24.9)              | 0.000 | 55 (28.5)    | 0.164 |
| Marital status         |                          |       |                        |       |              |       |
| Married                |                          |       |                        |       |              |       |
| A                      |                          |       |                        |       |              |       |
| Yes                    | 99 (39.9)                |       | 53 (21.4)              |       | 79 (31.9)    |       |
| No                     | 10 (25.0)                | 0.071 | 31 (77.5)              | 0.000 | 11 (27.5)    | 0.581 |
| B                      |                          |       |                        |       |              |       |
| Yes                    | 70 (39.1)                |       | 41 (22.9)              |       | 53 (29.6)    |       |
| No                     | 8 (23.5)                 | 0.084 | 28 (82.4)              | 0.000 | 10 (29.4)    | 0.982 |
| C                      |                          |       |                        |       |              |       |
| Yes                    | 68 (36.8)                |       | 41 (22.2)              |       | 50 (27.0)    |       |
| No                     | 6 (20.7)                 | 0.091 | 24 (82.8)              | 0.000 | 8 (27.6)     | 0.950 |
| Education              |                          |       |                        |       |              |       |
| High                   |                          |       |                        |       |              |       |
| A                      |                          |       |                        |       |              |       |
| High                   | 100 (37.2)               |       | 75 (27.9)              |       | 82 (30.5)    |       |
| Low                    | 9 (47.4)                 | 0.464 | 9 (47.4)               | 0.113 | 8 (42.1)     | 0.311 |
| B                      |                          |       |                        |       |              |       |
| High                   | 70 (35.5)                |       | 61 (31.0)              |       | 57 (28.9)    |       |
| Low                    | 8 (50.0)                 | 0.285 | 8 (50.0)               | 0.163 | 6 (37.5)     | 0.569 |
| C                      |                          |       |                        |       |              |       |
| High                   | 68 (34.2)                |       | 59 (29.6)              |       | 52 (26.1)    |       |
| Low                    | 6 (40.0)                 | 0.799 | 6 (40.0)               | 0.561 | 6 (40.0)     | 0.365 |
| Income                 |                          |       |                        |       |              |       |
| A                      |                          |       |                        |       |              |       |
| High                   | 81 (38.6)                |       | 41 (19.5)              |       | 68 (32.4)    |       |
| Low                    | 28 (35.9)                | 0.685 | 43 (55.1)              | 0.000 | 22 (28.2)    | 0.499 |
| B                      |                          |       |                        |       |              |       |
| High                   | 55 (37.7)                |       | 29 (19.9)              |       | 44 (30.1)    |       |
| Low                    | 23 (34.3)                | 0.638 | 40 (59.7)              | 0.000 | 19 (28.4)    | 0.792 |
| C                      |                          |       |                        |       |              |       |
| High                   | 56 (36.8)                | 0.342 | 30 (19.7)              | 0.000 | 43 (28.3)    | 0.541 |
| Low                    | 18 (29)                  |       | 35 (56.5)              |       | 15 (24.2)    |       |
| Permission by religion |                          |       |                        |       |              |       |
| A                      |                          |       |                        |       |              |       |
| Yes                    |                          |       |                        |       |              |       |
| No                     | 82 (44.8)                |       | 66 (36.1)              |       | 74 (40.4)    |       |
| B                      | 27 (25.7)                | 0.002 | 18 (17.1)              | 0.001 | 16 (15.2)    | 0.000 |
| Yes                    |                          |       |                        |       |              |       |
| No                     | 56 (41.2)                |       | 55 (40.4)              |       | 50 (36.8)    |       |
| C                      | 22 (28.6)                | 0.076 | 14 (18.2)              | 0.001 | 13 (16.9)    | 0.003 |
| Yes                    |                          |       |                        |       |              |       |
| No                     | 51 (38.1)                |       | 55 (41.0)              |       | 45 (33.6)    |       |
|                        | 23 (28.8)                | 0.183 | 10 (12.5)              | 0.000 | 13 (16.3)    | 0.007 |
| Knowledge score        |                          |       |                        |       |              |       |
| A                      |                          |       |                        |       |              |       |
| Good                   | 96 (39.5)                |       | 55 (22.6)              |       | 81 (33.3)    |       |
| Poor                   | 13 (28.9)                | 0.241 | 29 (64.4)              | 0.000 | 9 (20.0)     | 0.082 |

*Continued next page*

**TABLE 2. (Continued)**

| Sex  | Sign organ donation card | P     | Discuss organ donation | P     | Donate organ | P     |
|------|--------------------------|-------|------------------------|-------|--------------|-------|
| B    |                          |       |                        |       |              |       |
| Good | 68 (38.9)                |       | 43 (24.6)              |       | 55 (31.4)    |       |
| Poor | 10 (26.3)                | 0.193 | 26 (68.4)              | 0.000 | 8 (21.1)     | 0.243 |
| C    |                          |       |                        |       |              |       |
| Good | 62 (36.0)                |       | 37 (21.5)              |       | 49 (28.5)    |       |
| Poor | 12 (28.6)                | 0.375 | 28 (66.7)              | 0.000 | 9 (21.4)     | 0.440 |

A, tertiary health care level; B, secondary health care level; C, primary health care level.

of an individual reported that attitude could be flexible and increasing performance of a behavior and knowledge about an issue would enhance attitude.<sup>25</sup> Improving relevant knowledge of HCWs would give positive orientation toward OD.

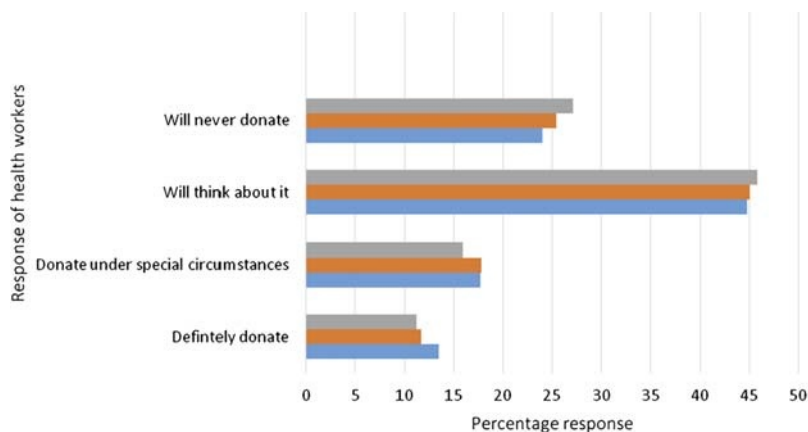
There are demographic characteristics in this study that are similar to other reports.<sup>26-28</sup> Young and female HCWs were more willing to donate whereas men would be ready to sign OD card and counsel potential donors if needs be at all levels of care. Men being less likely than women to donate organ and be altruistic,<sup>29</sup> which is more likely to be demonstrated by women, is a strong predictor of willingness in OD. Men are better with abstract communication than women. The United Network for Organ Sharing in 2002 reported that more than half of all living donors were women. According to Manstead,<sup>30</sup> the difference in expressed support for and actual donation is a reflection of social desirability and expected humanitarian behavior. Effective efforts should be made to close this gap to increase the yield of organs for donation.

Even though there are no religions that formally condemn OD, the fact that OD has not been made a public knowledge probably encourages ignorance among some of the HCWs concerning donation. Some were not sure whether their religion supports it or not. Interestingly, knowledge of permission by one's religion positively influenced the workers to donate in our study. Religion is a double-edged sword because it could be a reason to donate and could as well deter others to do same.<sup>31</sup> When one realizes this role of religion, positive disposition of religious leaders to OD should first be sought for the news to go down to the congregations for the success of OD in the country.

Of importance is the fact that having knowledge of risk factors that are associated with OD did not deter majority

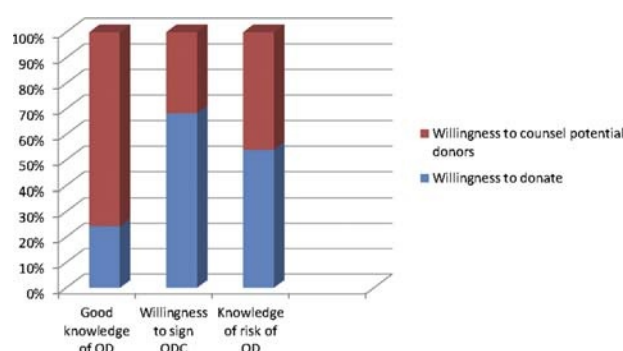
of HCWs who were willing to donate. This same group of workers is also ready to counsel relations of patients who are potential donor. These qualities should be emphasized, encouraged, and spread for sustenance among the health workers through more educational programs to maintain strong and unwavering attitudes. However, less than 50% of health workers at each level who would be willing to donate while alive will sign OD cards. There is a difference in belief between living and cadaveric donation. Boulware et al<sup>25</sup> reported a disparity driven by mistrust in health workers, age, religion, and race in living donation as compared with cadaveric donation. Although about two thirds in their study group would be willing to donate to their siblings, less than half of them had actually signed an OD cards. This is also supported by the reports of other groups.<sup>32-35</sup> Tong et al<sup>36</sup> found that majority favors living donation more than cadaveric. The practice of living donation for many years and till date in the country might have confused many workers of the relevance of cadaveric donation as an option. Sociocultural, ethnic differences, and lack of enabling laws might have also influenced this finding in our report. Signing an OD card with eventual removal of organ at death remains to many a sacrilege in Nigeria. This reason could be extrapolated from the negative attitude and low level of acceptance of autopsy in Nigeria.<sup>37,38</sup> The belief of many is that body should remain intact at burial.

In each of the levels of care, at least 60% of the HCW with good knowledge of OD were ready to counsel potential donors but 1 of 5 HCWs, who would be willing to counsel potential donors, would sign donation cards. Talking donors and relations into donations is vital for the success of organ transplantation. It is a skill that is greatly desired among health workers. Passion, accuracy of knowledge with persuasive



**FIGURE 1.** Willingness of health care workers to donate at various levels of care.





**FIGURE 2.** Relationship between attitude and practice of health care workers.

messages that are narrative,<sup>39</sup> is needed among health workers to boost OD. Appropriate knowledge of HCWs about OD affects their disposition to counseling potential donors. Worrisome though, those HCWs in this study were not willing to sign donation cards. Faith and sociocultural beliefs are possible barriers to registration as a donor. In other reports, however, a corresponding increase in the level of awareness and knowledge of the health workers is associated with readiness to carry OD cards.<sup>20,40</sup>

The strength of our study is the large sample size involving the 3 tiers of health care levels in the country. However, our study is limited by the self-reported information of the participants which might have been affected by recall bias, although this is an unavoidable situation because questions on perceptions are best self-answered. Information provided as a measure of knowledge and attitude toward OD might also have been affected by the fact that there is no cadaveric organ transplantation in the country as at the time of this study. There would therefore be a need for more studies with the use of this questionnaire to provide wider perspective on both cadaveric and living ODs. The future direction of research in this area of transplantation in the country is a dive into cadaveric transplantation to broaden the net of the program.

In conclusion, there is no difference in the level of knowledge and attitude of HCWs toward OD among the 3 tiers of health care. An issue of greatest concern among health workers is the negative attitude as reflected in the low willingness to donate and readiness to counsel potential donors to donate. The poor attitude at all levels of care could be a reflection of the prevailing attitude in the general population. We recommend, therefore, that a similar study be replicated in the general population for comparison. We also suggest that concerted efforts be made to educate, adequately inform, and motivate HCWs at all levels toward OD. With effective policies on proper coordination of the 3 levels of health care in OD as being practiced in other countries like Brazil,<sup>17</sup> there is a great chance to expand the organ donor base and increase pool of donors as other levels of care. Currently, the country does living donation only. This study will help to form part of evidence for action on which other new OD policies, for instance, cadaveric donation, stand to be built in the nearest future.

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