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## Renal Data from Asia–Africa

### **Knowledge and Attitude toward Organ Donation among Health-Care Professionals in a Rural Town in India**

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**ABSTRACT.** Organ shortage is the greatest challenge facing the field of organ transplantation today. We aimed to study the attitude and knowledge toward organ donation among health-care professionals (HCPs) in rural India. The study was conducted in a rural town in Konkan region of Maharashtra in India. A questionnaire testing knowledge and attitude about various aspects of organ donation was distributed to HCPs. One hundred percent of the respondents were aware about organ donation. Nearly 40.6% and 21.9% believed that a healthy person and a cardiac dead person can be donors, respectively. Fifty percent believed that a brain dead person can be a donor and 3.1% clearly stated as to be having no idea regarding the health status of a donor. Almost 37.5% were ready to believe a heart beating person declared as “brain dead” as dead. Nearly 15.6% were ready to accept a brain dead person as “legally” dead. Highest awareness was observed regarding eye donation, i.e., 87.5%. High awareness was also observed regarding liver, kidney, heart, skin, and body donations, i.e., 78.1%, 65.6%, 37.5%, 31.3%, and 25.0%, respectively. Awareness regarding organ donation of other tissues and organs was poor. Nearly 46.9% HCPs stated that they felt need for an educational session on organ donation. Awareness regarding concept of organ donation among HCPs in rural India is high. Awareness regarding details of organ donation needs further awareness drives. There is a lack of understanding regarding various aspects of brain death and its importance in organ donation.

#### **Introduction**

The basic material needed for any transplant  
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is a healthy donated organ which can be transplanted. Today, the world faces an acute organ shortage and everyday patients are dying on the waiting list, waiting for organs to become available.<sup>1</sup> Health-care professionals (HCPs) can be used as efficient sources of information, to generate a favorable attitude toward organ donation among the population.<sup>2</sup> Awareness of organ donation has been found to be directly proportional to education.<sup>3</sup> A medical

practitioner educated in organ donation can propagate this knowledge at the community level helping thus to increase the organ donation rate.

The study was taken up to assess the knowledge and attitude of HCPs from a rural part of India regarding organ donation.

### Subjects and Methods

The study was conducted in a rural town in Konkan region of Maharashtra in India after obtaining prior ethical committee permission.

In this cross-sectional study, 40 questionnaires were distributed to HCPs attending a medical association meet.

A specially designed self-administered questionnaire covering demographic data, knowledge, and attitude of the HCPs was prepared (Table 1).

The inclusion criterion for the study population was that the participants had to be HCPs practicing in that rural town and exclusion criterion was those who refused to give consent to participate in the study. Only those consenting to participate were involved in the study. The respondents were assured that their confidentiality would be maintained and ethical principles would be followed.

The questionnaire was administered to the participants after obtaining their consent. The participants were given a time period of 15 min for completion of the questionnaire wherein the respondent would indicate his/her response to the questions using the categories provided in the questionnaire in privacy without any discussion with anyone. The methodology was explained to all the HCPs.

The duly filled questionnaire was collected. This was followed by a presentation and dis-

Table 1. The questionnaire that was administered to the health-care professionals.

1	Age: years
2	Gender: Male Female
3	Education:
4	Marital status: Married Unmarried
5	Religion: a) Hindu c) Christian b) Muslim d) Other
6	Which of the following sources gave you information of organ donation a) Newspapers d) Medical College b) Television e) Any other (please specify)..... c) Internet .....
7	Who can be an organ donor? a) Living healthy person c) Nonheart beating person b) Brain-dead person d) Don't know
8	Will you consider a person who is declared "brain-dead" but has a beating heart as dead? a) Yes b) No Any Comments: .....
9	Which of the following are true for brain death? a) Irreversible loss of brain functioning c) Body may feel warm due to the patient b) Heart continues to function due to support by ventilator d) Patient is legally dead.
10	Which of the following organs can be donated and transplanted? a) Eye h) Kidney b) Lungs i) Skin c) Liver j) Bone d) Intestine k) Pancreas e) Ligament l) Heart valves f) Entire body m) Any others g) Heart

Continuation of Table 1.

11	The family of a deceased person can pledge his organs even if the person had not signed a donor card during his lifetime a) True b) False
12	A single donor can donate to multiple recipients, thus saving multiple lives a) True b) False
13	How often are you asked by patients about organ or body donation? .....
13 (a)	Which type of donation are these queries about: a) Body donation b) Organ donation
13 (b)	If "Organ donation" please specify the organ commonly inquired about .....
14	Have you talked recently about Organ Donation with any patient? a) Yes b) No
14 (a)	(If yes) Which of the following are true: a) You felt very confident discussing this topic b) You felt you have adequate knowledge regarding organ donation c) You felt need for educational session on this topic d) You did not feel it was necessary for you to know more than what you knew
15	When do you feel the topic of organ donation should be taught to doctors: a) In undergraduate medical education years b) In Internship period c) In postgraduation years d) During practice by way of CMEs or guest lectures e) Throughout You can give reason for your answer .....
16	In your practice how often do you come across cases that could benefit from Organ transplant? a) Once a week b) Once a month c) Twice a month d) Never e) Any other.....
17	What do you do with such cases? .....
18	What is your opinion of Organ donation and transplant activity in this region a) Nonexistent b) Needs improvement c) OK d) Excellent Please elaborate /give suggestions .....
19	Do you feel that there is necessity to promote Organ donation in this region? a) Yes b) No
19 (a)	(If Yes) Who do you feel will best promote organ donation among people: a) Hospital administration b) Government c) Health care professional d) NGOs
19 (b)	(if No) Why do you feel so? .....
20	Would you like to be an organ or cadaver donor? a) Yes b) No c) Would like to discuss with family d) Don't know
20 (a)	(If yes) What are your reasons for opting for organ donation a) I would like something positive to come from my death b) I can help several other persons live a longer healthier lives c) I can continue to live even after my death d) My religion supports organ donation
20 (b)	Whom would you like to donate to? a) Family member b) Medical college c) Friend d) Unknown individual

*Continuation of Table 1.*

20 (c)	Will you like to sign a donor card a) Yes b) No
20 (d)	(If no)What are your reasons for opting against organ donation? a) It is against my religious beliefs b) I do not believe in organ donation c) I do not wish to be cut open or otherwise mutilated d) I do not believe in the ability of the system to support the donated organs till they reach a suitable donor e) I fear that the donated organ may be misused f) I live very far away from closest center of organ donation g) I have fear of the process h) I couldn't be bothered to do all this i) Any other.....
21	Do you feel that organ donation after death is individual's social commitment? a) Yes b) No
22	Are you aware that there is legislation with regard to organ donation? a) Yes b) No
23	Which of the following statements do you agree with? a) Law should be made such that everyone is a donor unless they specifically say no b) Accept an organ donated by a death row prisoner c) Financial aid should be provided to donor or his/her family d) Provide some incentive to donor family e) Organ donation is done by a person of his own free will and so no financial aid should be provided
24	Would you like to be part of organ donation awareness group, if such group is started in your city and motivate others for organ donation? a) Yes b) No

discussion session on organ donation. The queries of the participating HCPs were noted and clarified.

### Results

Out of the total of 40 HCPs approached for the study, 32 (80%) consented to participate in the study.

The demographic details of the willing respondents are given in Table 2.

The results were grouped as the findings related to knowledge and those related to attitude. The findings related to knowledge are presented first.

One hundred percent of the HCPs had awareness regarding organ and body donation.

Table 3 depicts their sources of knowledge regarding organ donation. This was followed by a discussion regarding the perception of the participating HCPs regarding the health status of a donor. Almost 40.6% felt that a donor can be a living healthy person, 50% felt that it can be a brain dead person, and 21.9% felt that donor should be a naturally dead person. Nearly 3.1% professed not to know anything regarding health status of a donor.

HCPs then answered some questions regarding brain death and characteristics of the brain dead person. Almost 71.9% understood

Table 2. Demographic data of participating health care professionals (HCPs).

Number of HCPs approached	40
Number of HCPs consenting to participate in the study	32 (80%)
Following are the medical qualifications of the participating HCPs	MS/MBBS/DA/BAMS/BHMS/ LCEH/ DMS
Age of participants	24–53 years
Time of activity	10:00 pm onwards

Table 3. Source of awareness of body and organ donation.

Newspaper	11	34.4%
Television	13	40.6%
Internet	11	34.4%
Discussed at medical college	9	28.1%
Any other	4	12.5%

that the brain death meant that the patient had irreversible loss of brain functioning. Nearly 34.4% stated that the heart would be beating and patient would be on ventilator support and 12.5% felt that the patient's body would feel warm. About 15.6% felt that brain death was a legal form of death. Nearly 37.5% stated that they would consider a patient who was "declared as brain dead and whose heart was beating" as dead and 50% stated that they would not consider such a person as dead. Almost 15.5% were undecided on this issue.

Table 4 depicts the knowledge of the respondent HCPs regarding various organs that can be donated. About 87.5% of the participants were aware that a single donor could donate to multiple recipients. Thirty-four percent HCPs stated that they never on their own initiated any discussion regarding organ donation with any patient. About 46.9% reported queries from

patients regarding organ donation. Most of the queries were regarding eye (31%) and kidney (31%) donation and a few patients had asked about donation of liver (16%) and heart (6%). 12.5% HCPs reported queries regarding body donation.

Table 5 depicts the feelings of HCPs regarding their own knowledge about organ donation.

Table 6 depicts the responses of HCPs as to when an educational session on organ donation would be most effective for a HCP.

The HCPs stated that they came across cases where organ donation could benefit the patient once in six months. Any such case was sent to the closest big city which was about 1–4 h drive away due to poor infrastructure and road links. One hundred percent HCPs felt that there was a need to promote organ and body donation in the region. Thirty-four percent felt

Table 4. Knowledge of organs that can be donated.

Eye tissue	28	87.5%
Liver	25	78.1%
Kidney	21	65.6%
Heart	12	37.5%
Skin	10	31.3%
Ligament	5	15.6%
Entire body	8	25.0%
Bone	7	21.9%
Pancreas	7	21.9%
Heart valves	5	15.6%
Lungs	4	12.5%
Intestine	3	9.4%

Table 5. The feelings of the health professionals regarding their own knowledge about organ donation.

a) You felt very confident discussing this topic	1	3.1%
b) You felt you have adequate knowledge regarding organ donation	1	3.1%
c) You felt need for educational session on this topic	15	46.9%
d) You did not feel it was necessary for you to know more than what you knew		No response

Table 6. Responses of health care professionals as to when an educational session on organ donation would be most effective.

a) In undergraduate health education years	10	31.3%
b) In internship period	9	28.1%
c) In postgraduation years	2	6.3%
d) During practice by way of CMEs or guest lectures	9	28.1%
e) Throughout	9	28.1%

that this promotion can be done by hospital administrations, 25% felt that the government should be carrying out this work, 62% felt that it was the job of the HCP himself, and 50% felt that there should be involvement of non-governmental organizations.

Thirty-two percent of the HCPs were aware that body and organ donation activities were governed by strictly implemented laws. Fifty-three percent of the HCPs were aware about the right of close family members to agree for body and organ donation in case potential donor died without signing the donor card.

Almost 56.3% HCPs were willing to be organ donors, of which 34.4% were willing to donate to their own family member. Twenty-five percent and 56.3% were willing to donate to a close friend and unknown individual, respectively. Nearly 31.3% were willing to donate to a medical college.

Nearly 6.3% HCPs felt that some form of compensation should be given to the organ or body donor. This could act as an incentive for organ or body donation. 28.1% respondents felt that organ or body donation was activities carried out of their own free will and no incentive was necessary to be provided.

### Discussion

The present study was conducted in a small rural town in Konkan region of Maharashtra in India. It lies in a hilly terrain, about 50 km away from the district headquarters. The closest railway station lies about 15 km from the town center.

Eighty-percent of the HCPs consented to participate in the study which is similar to 80.5% consent to participation observed in a study conducted by Bilgel et al in Turkey and by Bardell et al in Canada.<sup>4,5</sup> The activity in the

present study was conducted at 10 pm in the night after the busy practitioners were able to finish their evening clinics and arrive for the medical association meet. This does put their level of commitment to the medical cause in a very positive perspective.

The present article reports 100% awareness among HCPs regarding organ and body donation. Highest percentage of HCPs (40.6%) obtained their knowledge regarding organ and body donation from television. Equal number (34.4%) claimed newspaper and internet as their sources of knowledge. Nearly 28.1% stated that they obtained the knowledge from their medical college. Ali et al reported that the HCPs participating in their study had obtained knowledge regarding organ donation from the media (64.6%), family (50%), newspaper (42.4%), and health-care providers (27.8%).<sup>6</sup> Almohsen et al stated that 61.5% of the participants in their study reported that the primary source of their knowledge about organ donation was television.<sup>7</sup> Majeed reported that 50.8% of the HCPs they studied reported that their source of knowledge on the subject of organ donation was their medical college.<sup>8</sup> Organ and body donation involve detailed medical aspects such as understanding of brain death, etc., which can be best understood at the medical college level. The information thus obtained would be more scientific as well as reliable.

This knowledge of the HCPs was further explored in the questionnaire. On being questioned regarding the health status of a donor, 40.6% stated that a donor is a healthy live individual. This reflects the knowledge of the HCPs regarding live organ donation. However, while a live organ donor can donate one kidney and parts of some organs such as lung and liver, a brain dead donor can donate to almost



50 individuals, thus making a difference in the lives of many more individuals compared to a live organ donor who usually benefits only one individual.<sup>9</sup> Almost 21.9% felt that a donor is a naturally dead person. In the discussion session, it was revealed that the HCPs did not have the understanding that organs such as kidney and liver could not be donated after cardiac death in the Indian scenario and that very few organs and tissues such as eye, skin, etc., or the entire body in case of body donation are actually donated by a naturally dead person. Fifty percent of the HCPs felt that a donor should be brain dead individual. Almost 68.9% of the participants in a similar study by Bilgel et al reported that a donor is a brain dead person who has given consent to organ donation.<sup>4</sup>

Regarding brain death, 37.5% were willing to accept a person with a beating heart as legally dead if declared as brain dead by the brain death committee, while 50% of HCPs were unwilling to do so. In a similar study by Sheerani et al carried out in Karachi, Pakistan, 44% of the HCPs were willing to accept a person declared as brain dead as actually dead person, while an equal number were unwilling to do so as the heart was beating.<sup>10</sup> While 71.9% of the HCPs in the present study understood that the brain death meant irreversible loss of brain function, only 15.6% accepted that brain death was a legal form of death. In the study by Sheerani et al, 50% of the HCPs did not consider brain death as a criterion of death.<sup>10</sup> An HCP, who does not accept the brain death declared by brain death committee as legal death, would not approach the relatives of the patient regarding possibility of organ donation. A study conducted by Kosieradski et al in Poland indicated that there are clear regions in Poland where there is high or low organ donation activity. Interviews of HCPs in each of these regions indicated that the HCPs in low activity region were twice more reluctant to diagnose brain death.<sup>11</sup> The authors concluded that low donation activity was most likely reflecting the attitude of the HCPs. From above discussion, it appears that there is a lack of adequate knowledge regarding brain death among the HCPs and that one

of the factors affecting organ donation was the attitude of the HCP toward this activity, especially in relation to diagnosis of brain death.

Highest percentage of the HCPs was aware about eye donation (87.5%), while awareness regarding liver (78.1%) and kidney (65.6%) donation was also found to be high. The knowledge regarding other organ or tissue donation was found to be below 50%. In a study conducted by Ali et al in Pakistan, highest awareness was reported regarding kidney donation, followed by other tissues and organs.<sup>6</sup>

In the present study, during discussion session, some of the HCPs raised the issue of distance of nearest eye bank which was 40 km away from their rural town. Thus, a HCP from the eye bank would have to travel this distance for retrieval of the eyeballs in case of eye donation. Similarly, the nearest organ retrieval center and a hospital equipped to carry out transplant surgeries were also a similar distance away. Thus, knowledge as well as positive attitude of the HCPs in the region was hampered by lack of adequate facilities available in the region for organ donation. Thus, the infrastructural support needed to promote organ donation was not available in this rural town in Maharashtra. Barry stated that to make deceased donor program, a success in India, the infrastructure issues must be addressed.<sup>1</sup>

From the questionnaire, it appears that some of the people of this region have inquired regarding body donation as well as about transplants of kidney and liver. Almost 47% of the HCPs had been approached with queries regarding organ donation. Thus, there is awareness as well as need for these activities here.

Regarding body donation, the two nearest medical colleges are about 70 and 100 km distance away which is at least 3 h drive in the ambulance. This distance and travel time makes body donation almost impossible as by the time the ambulance arrives to take the body and finally reaches the body to the Medical College at least 6–8 h would have elapsed since death of the donor. Same challenges affect organ donation activity as well.

While discussing the comfort level of the HCPs regarding organ and body donation, almost half the participating HCPs felt the need for educational sessions on this topic. The HCPs felt that these educational sessions should be conducted either during undergraduate education in the medical college, during the internship period, through CMEs, or through all the above. Oluyombo et al have stated that there is a need to hold education sessions to educate the HCPs about organ donation.<sup>12,13</sup>

Ali et al in a similar study reported that only 22.2% of the HCPs felt confident to counsel anyone on the issue of organ donation.<sup>6</sup> At present, there is insufficient emphasis on organ donor recruitment in the medical curriculum and lack of exposure of the future HCP to the entire transplant process. There are also religious and legal ambiguities. All these factors decrease the ability of the HCP to confidently address the issue of organ donation with a potential donor. Rykhoff et al studied the effect of educational sessions on the awareness regarding organ donation among health science students and reported a significant increase in their willingness to be donors as well as their awareness regarding various aspects of organ donation.<sup>14</sup> Such educational sessions could help educate HCPs regarding organ donation. A study by Burra et al conducted among medical students found that they had a very positive attitude toward organ donation, but their attitude did not undergo much change during the course of their medical years.<sup>15</sup> The authors suggested a need for educational program specific to organ donation.

Bilgel et al studied the attitude of medical care professionals toward body/organ donation and concluded that since medical care professionals are leaders in promoting organ donation action, these issues should be taught within the context of social medicine lessons during medical schooling, and desirable behavioral changes should be implemented.<sup>4</sup>

India had a very poor reputation in organ trade activities in the 1990s. Residents from all over the world traveled to India for purchase and transplant of organs.<sup>16</sup> To counter this in

1994, the Indian Government founded the [transplant of human organs (THO)] Act which enunciated the strict rules controlling any transplant activity.<sup>17</sup> Thirty-two percent of the HCPs had awareness regarding these strict laws governing organ donation activities. Almost 68% of the HCPs were unaware of the THO Act and the associated severe punishment meted to those not complying with the law. This lack of awareness regarding legalities of organ donation today would be reflected in the conversation a HCP may have with any patient who inquires about organ donation and would hamper the cause of organ donation movement.

Almost 56.3% of the participant HCPs were willing to be donors and 18.8% wanted to discuss with their families. Bilgel et al stated that the attitude of a HCP toward donating their own organs will influence their attitude toward organ donation.<sup>4</sup> None of the HCPs in the present study stated outright that they did not want to be organ donors. Alolod also reported that most HCPs participating in their study were positive toward organ donation.<sup>17</sup> HCPs in both above categories, i.e., those willing to be donors as well as those who wished to discuss with their families could be considered as having a positive attitude. Discussion of decision to be an organ donor with the immediate family members is a very important part of decision regarding organ donation.

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