

## Original Article

# Knowledge and Attitude of Bangladeshi Physicians towards Organ Donation and Transplantation

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## Abstract

**Background:** Organ transplantation saves thousands of lives worldwide. There is discrepancy between organ demand and supply which demands cadaveric donation. Knowledge and attitudes of physicians towards organ donation and transplantation can increase the rate of organ and tissue donation by motivating general population.

**Methodology:** This cross-sectional survey was done on 150 Bangladeshi physicians including specialist and post-graduate students on four teaching hospitals in Dhaka, Bangladesh over a period of six months. After taking informed consent, the participants were given a self-administered questionnaire which includes socio-demographic data, knowledge and attitude about organ donation and transplantation.

**Results:** Male and female were almost equal (Total 102, Male 54, female 48) with mean age was  $34.6 \pm 5.0$  years and 54.9% were specialists and 45.1% were post graduate students. More than 32% respondents were from Medicine, followed by Nephrology (26.5%), Critical Care Medicine (CCM) (25.5%) and Urology (15.6%). Fifty-six (54.9%) physicians agreed with organ donation after death. The most important reason of agreement was to help others (78.4%) and disagreement was religious fear (54.3%). More than 40% respondents agreed and 59.8% completely disagreed with living kidney donation. The most common reason for agreement of living kidney donation was to donate to help family member (82.93%) and disagreement was probable damage to donors (52.46%). More than three-fourth (76.4%) respondents had knowledge about theoretical basis of transplantation, 50% know about cost and 43% about organ transplant Act, Bangladesh. Significant positive correlation was found between physicians' attitudes towards organ and tissue donation after death and knowledge about theoretical basis of transplantation ( $p = 0.02$ ,  $r = 0.43$ ) and cost of transplantation in Bangladesh ( $p = 0.02$ ,  $r = 0.22$ ) but no statistically significant correlation with knowledge about organ transplant Act, Bangladesh ( $p$  value = 0.19,  $r = 0.13$ ) whereas significant positive correlation between physicians knowledge about transplant Act ( $p = 0.008$ ,  $r = 0.28$ ), cost ( $p = 0.04$ ,  $r = 0.23$ ) and theoretical basis of transplantation ( $p = 0.04$ ,  $r = 0.20$ ) was found in living kidney donation.

**Conclusion:** Physicians had a good attitude towards organ donation and transplantation although less than half of them had knowledge of transplantation rules and financial issues; therefore, additional awareness and education of physicians is needed in all areas of the organ transplant process in Bangladesh to make organ donation and transplantation successful.

**Key Words:** Attitude, Knowledge, Organ donation, Organ transplantation, cadaveric donation, Brain death

## Introduction :

Organ transplantation saves thousands of lives worldwide. According to World Health Organization (WHO), kidney transplantation is carried out in 91 countries<sup>1</sup>. Around 66,000 kidney donations, 21,000 liver donations and 6000 heart donations were transplanted globally in 2005<sup>1</sup>. Organs for donation are retrieved from both living donors as well as cadavers. In Bangladesh, however, almost all organ donations come from living donors. There are 2 crore patients who are suffering from kidney diseases in Bangladesh, which is about 9 percent of the country's total population. More than 35,000 people are affected with kidney diseases every year and about 40,000 are dying due to kidney-related diseases. These alarming statistics call for urgent remedial actions by all concerned<sup>2</sup>. Organ transplantation is the treatment of choice for end-stage organ failure. There is discrepancy between organ demand and supply for organ transplantation, which can increase the importance of organ procurement. More than one million people in the world have received organ transplants, some of whom have survived for more than 25 years. The five-year survival rate is more than 70% in most cases. Although there are some treatments available for organ

failure (e.g., dialysis in renal failure), there are many patients on the waiting list for organ transplantation because of their problems. The main causes for refusal of organ donation are lack of knowledge and misinformation regarding organ donation<sup>3</sup>.

Organ donation is the process of giving an organ or a part of an organ for the purpose of its transplantation into another person. It can be related to a deceased donor or a living donor. It has been legalized in Bangladesh under the "Transplantation of Organ Act, 1999". This trend has been reported to vary with the development status of the country. Motivation to donate has been shown to have an association with knowledge and awareness of organ donation<sup>4</sup>. Most of the research evidence on this subject is from the more developed countries. One study done in European Union determined that more educated, younger age and expressing some sort of political affiliation determined willingness to donate one's own organs and consent to the donation of those of a relative<sup>5</sup>. From the developing world, a study conducted in Filipinos using qualitative theme analysis identified major themes related to organ donation as: awareness of organ donation, family beliefs, religion, attitude/emotions and

personal experience with organ donation, health profession, and cultural issues<sup>6</sup>. Health care personnel, especially physicians, have an important role in shaping public attitudes particularly when there is considerable lack of knowledge about organ donation in the general population<sup>7</sup>. This role can be obtained by educating patients and encouraging families to discuss about organ and tissue donation<sup>9</sup>. Moreover, the physicians' knowledge of organ donation rules and standards has positive effects on their attitudes and thus, their role in shaping the general populations<sup>3</sup>. Available data support the need of increased and substantial organ and tissue donations. Assessment of the knowledge and attitudes of our physicians and medical staff towards donation and transplantation can be used in future planning programs for increasing the rate of organ and tissue donation<sup>8</sup>. In this study, we have assessed knowledge and attitudes of physicians and surgeons dealing with transplantation which include Medicine, Nephrology, Critical Care Medicine (CCM) and Urology towards organ donation and transplantation.

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#### Material and methods :

This cross-sectional survey was done in January to April, 2014 on 150 Bangladeshi physicians including specialist and post-graduate students. Respondents were from Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM), Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka Medical College Hospital (DMCH) and Sir Salimullah Medical College and Mitford Hospital (SSMC&MH), four reputed post-graduate medical teaching institutes in Dhaka, Bangladesh. Physicians, both specialist and Postgraduate medical trainees in Medicine, Nephrology, CCM and Urology, were included in this study. Participants were selected by snow ball method. After taking informed consent the participants were given a self-administered questionnaire that included the following information: demographics including age, sex, marital status, specialty and institution, attitudes towards organ and tissue donation including attitude towards organ donation after death or brain death and the reasons, living kidney donation and the reasons, cadaveric donation of a family member, cadaveric donation of themselves, attitudes towards having donation card, amount of reliance to medical staff in charge of transplantation, knowledge about transplantation rules in Bangladesh, theoretical basis of kidney transplantation and cost of kidney transplant. Statistical Package for the Social Sciences (SPSS) version 20.0 was used to analyze data. Quantitative data were analyzed by mean and standard deviation and qualitative data were analyzed as percentage and comparison carried out between two groups by Chi-square ( $\chi^2$ ) and correlation was determined by Pearson correlation coefficient (r). r value ranges from -1 to +1 where -1 indicates negative correlation, +1 indicates positive correlation and 0 indicates no correlation. Probability (p) value <0.05 was considered statistically significant.

#### Results :

A total of 150 Bangladeshi physicians including specialists and post-graduate medical students were given the questionnaire by snow ball method. Among them 102 respondents filled up the form properly and returned within given time. So, the response rate in this survey was 68%.

In our survey male and female respondents were almost equal in number (Male, 54, female 48). In our survey more than half (54.9%) were specialists and rest (45.1%) were post graduate students. (Table I)

Mean age of the respondents was 34.6±5.0 years. Most (93, 91.2%) of the physicians were married. Fifty six (54.9%) physicians agreed with organ donation after death. The most important reason providing for their agreement in this group was "to help others" in 78.4% followed by 'to help family' in 11.8% and 'wishing to survive in recipients body' in 9.8% of the respondents. Out of 56 physicians who agreed with organ donation after death, 25% wanted to donate all organs, 56% only cornea, 10.7% only kidney and 8.3% both cornea and kidney after death due to organ failure, trauma or brain death. Whereas the most common reason for disagreement of organ

**Table I: Socio-demographic characteristics of study population**

Variable	Frequency	Percentage
<b>Age</b>		
<30 years	15	14.7
30-40 years	78	76.5
>40 years	9	8.8
<b>Gender</b>		
Male	54	52.9
Female	48	47.1
<b>Marital status</b>		
Married	93	91.2
Unmarried	9	8.8
<b>Institute</b>		
BIRDEM	63	61.8
BSMMU	18	17.6
DMCH	12	11.8
SSMCH	9	8.8
<b>Level of physician</b>		
Specialist	46	45.1
Post-graduate student	56	54.9
<b>Specialty of respondents</b>		
Medicine	33	32.4
Nephrology	27	26.5
CCM	26	25.5
Urology	16	15.6

donation after death was “religious fear” (54.3%) followed by ‘to honor body’ (17.4%), family constraints (15.2%) and fear of disfigurement (13.1%).

Of the study respondents 41 (40.2%) agreed and 61(59.8%) completely disagreed with living kidney donation. The most common reason for agreement was to donate to help own family in 82.9% respondents followed by to help spouse in 17.1% and reasons of disagreement on living kidney donation was probable damages to donors in half (52.5%) of the respondents. Other causes were family constraints, religious fear and disease in 36.0%, 8.2% and 3.3% of the respondents respectively.

More than half (59.8%) physicians wanted to counsel family member for organ donation both living and cadaveric. Only 2.0% physicians had family member who had transplantation and 1.0% had family member waiting for transplantation. Only 44 (43.1%) physician wants to have organ donation card to donate after death due to organ failure, trauma or brain death.

Of the study respondents more than half (57%) physician had no knowledge about the organ transplant Act, 1999 of Bangladesh but more than three fourth (76.4%) physicians knows about theoretical basis of kidney transplant. Only half of physician knows about cost of kidney transplantation in Bangladesh.

More than 80% study respondents believed that cadaveric kidney transplantation should be started in Bangladesh as soon as possible and all respondents recommended that man power involved in transplantation should be trained by government funding.

**Table II**

Knowledge about organ transplant Act of Bangladesh	Attitude towards organ and tissue donation after death			
	Positive	Negative	p value	r value
Yes	28(62.2%)	17(37.8%)	0.19	0.13
No	28(49.1%)	29(50.9%)		
<b>Knowledge about cost of organ transplant in Bangladesh</b>				
Yes	39(63.9%)	22(36.1%)	0.02	0.22
No	17(41.5%)	24(58.5%)		
<b>Knowledge about theoretical basis of organ transplantation</b>				
Yes	47(61.8%)	29(38.2%)	0.02	0.43
No	9(34.6%)	17(65.4%)		

r = Pearson correlation coefficient

**Table III**

Knowledge about organ transplant Act of Bangladesh	Attitude towards living kidney donation			
	Positive	Negative	p value	r value
Yes	25(55.6%)	20(44.84%)	0.008	0.28
No	16(28.1%)	41(71.9%)		
Knowledge about cost of organ transplant in Bangladesh				
Yes	30(49.2%)	31(50.8%)	0.04	0.23
No	11(26.8%)	30(73.2%)		
Knowledge about theoretical basis of organ transplantation				
Yes	35(46.1%)	41(53.9%)	0.04	0.20
No	6(23.1)	20(76.9%)		

r = Pearson correlation coefficient

### Discussions :

This study was done to evaluate knowledge and attitude of Bangladeshi physicians towards organ and tissue donation with major emphasis on kidney donation. It has been observed that there is paucity of literature on attitude of physicians on organ donation.

Response rate in our study was 68% which was lower than similar study done by Saleem et al<sup>9</sup>. We found that 54.9% physicians agreed with organ and tissue donation after death which was much lower than the results of studies conducted by Rios et al on future specialists in Spain and Mexico (93%)<sup>10</sup> and Amaral et al in Brazil (87%)<sup>11</sup>. Nadoushan et al found 78% physician agreed with donation after death<sup>8</sup>. Most common reason of organ donation after death was to help others and it was similar to study done by Nadoushan et al<sup>8</sup>. In our study we found most common reason for disagreement of organ donation after death was "religious fear." followed by 'to honor body' but Nadoushan et al found most common reason was to honor body in his study. We found 41 (40.2%) physician agreed and 61(59.8%) completely disagreed with living kidney donation but Nadoushan et al found in his study that 285 (51%) agreed and 123 (22%) completely disagreed with living kidney donation<sup>8</sup>. The most common reason for agreement of living donation was to donate to help family and causes of disagreement on living kidney donation was probable damages to donors in our study Nadoushan et al found most common

reason for agreement and disagreement on living kidney donation was "to help others" and "probable damages to donors," respectively<sup>8</sup>.

Nadoushan et al found that when they asked the respondents about having a donation card, only 68(12%) responded positively; however, 437 (78%) physicians expressed a positive attitude towards having a donation card<sup>8</sup>. Erdogan et al found that of 98% of the Turkish physicians with positive attitude towards organ donation, only 23% favored organ donation cards<sup>3</sup>. Our study found higher response rate that 43.1% respondent physicians agreed to have organ donation card out of those who responded positively about cadaveric

organ donation. Of the study physician 57% had no knowledge about the organ transplant Act but Nadoushan et al who found only 6% had no knowledge about the organ transplant Act<sup>8</sup>. But in his study 76.4% physicians had knowledge about principles of organ transplant compared to 47%<sup>8</sup>. Fifty percent respondent physicians know about cost of organ transplantation in Bangladesh which was higher compared to Nadoushan et al who found 40% knew about the cost<sup>8</sup>.

We found significant positive correlation between physicians' attitudes toward organ and tissue donation after death with knowledge about principles of transplantation and cost of transplantation in Bangladesh ( $p < 0.05$ ) but no correlation with knowledge about organ transplant Act, Bangladesh ( $p = 0.19$ ) Nadoushan et al found significant correlation between physicians attitudes toward organ and tissue donation after death and knowledge about transplantation rules ( $p < 0.05$ ) and financial issues of transplantation in Iran ( $p < 0.05$ )<sup>8</sup>. He also found significant correlation between physicians' knowledge and their attitude towards living kidney donation ( $p < 0.05$ ) as observed in our study<sup>8</sup>.

The sample size in our study was small and we used convenience sampling instead of probability sampling that likely will not represent our population and are probably the biggest limitations of our study.

Though it is a multicenter study but majority of the responders was from BIRDEM. As over half of the respondents did not agree to donate organ after death explaining religious fear so it could be better if we could analyze which religion and particularly which belief guided them to take such decision. Our study was done at a point in time when proposed cadaveric kidney donation and transplantation resulting from discrepancy of organ demand and supply has been a widely publicized misinterpreted issue in the public media in Bangladesh. Therefore, our research was relevant and timely. We hope our study will create an appropriate ground for promoting public awareness campaigns to make people more aware of value and need for organ donation.

### Conclusion :

Organ transplantation is the best modality of treatment in specific organ failure. To minimize the demand and supply mismatch, organ donation both living and cadaveric should be encouraged. Physicians can play a great role in promoting public awareness and thus increase the number of the organ donation which will result in increase in number of transplantation in our country.

### Conflict of interest :

None

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