

**ORIGINAL RESEARCH**

# Exploring Knowledge and Attitudes towards Organ Donation after Brain Death: A Cross Sectional Study among Medical Students

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**ABSTRACT**

**Background:** Organ donation after brain death can save many lives provided its timely procurement, transport and allocation. Due to long waiting list for transplantation in India, organ donation can help to meet the need for vital organs. Hence this study was planned to assess the knowledge and attitude regarding organ donation with understanding of brain death among medical students who play major role in ethical promotion of organ donation practice. **Methods:** A questionnaire based cross sectional study was conducted at institutional level among sample of 200 first year MBBS students of similar age group. Data were analyzed statistically. **Results:** 78.7% of students heard and knew the term cadaveric organ donation and 69.5% knew that organs are used for transplantation. Only 21% had idea about concept of brain death and none had knowledge about legal concerns. While 53% had knowledge that family or relative can give consent for donation of deceased organs. Males had more positive attitude than females. 39.5% were willing for organ donation after brain death. 75% wish to participate in awareness lectures. Fear of misuse of organs was the main reason for unwillingness to donate. **Conclusions:** There was moderately positive attitude towards organ donation but fear of misuse was main influencing factor leading to withdrawal from donating. But the laws about organ donation, concept of brain death were unclear and this knowledge is must for medical students who are future practitioners to prevent illegal means of meeting the demand of organs and enhance public awareness.

**Keywords:** Organ donation, Brain death, Transplantation, Medical students, Knowledge, Attitude.

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**INTRODUCTION**

Organ transplantation is a life saving milestone in modern healthcare worldwide that allows patients with organ failure to receive healthy organ and regain a new life.<sup>1</sup> But unfortunately in India, thousands of lives couldn't be saved due to unavailability of organs and long national waiting list for vital organs. To overcome unethical and illegal malpractices for procurement of organs to meet the demand, Transplantation of Human Organs and Tissue Act (THOTA) 1994 was enacted to regulate organ transplantation in India and prohibited sale of human organs.<sup>2,3,4</sup>

Organ donation is an act of giving an organ from donor, either during life or after death for transplantation to the recipient whose organs are severely damaged due to disease, accident or any

other fatal condition.<sup>3</sup> From donation to transplantation, it is a process which involves the steps of organ retrieval, recovery of organ that is harvesting, consent, screening and cross matching, fast transportation via green corridor up to the hospital where transplantation has to be done.<sup>5</sup>

Live donation means when a living person donates organ to someone and other is deceased organ donation or cadaveric organ donation, which further includes donation after brain death and donation after cardiac death.<sup>6,7</sup> When there is irreversible loss of brain function, the donor is declared brain dead by certification from 2 doctors 6 hours apart and organs are artificially maintained functional till transplant. In 1970 kidney was first organ to be transplanted in India. There should be promotion of organ donation after brain death because after live donation of kidney

remarkable deterioration of health of donor was seen.<sup>4</sup> Any individual of age 18 years and above can register to pledge for organ donation with National organ and tissue transplant organization (NOTTO).<sup>8</sup> In Madhya Pradesh there is Indore Society for organ donation (ISOD) to expedite organ donation.<sup>9</sup>

Emphasis should be on creating widespread awareness for organ donation practice to safeguard human rights, prevent exploitation of poor for money and control organ trafficking.<sup>4,6</sup> For this medical students who are future doctors should have knowledge about it as well as responsible attitude to contribute to the society.<sup>10</sup> There are very few studies on organ donation from central India among medical students. So keeping this in view, the current research was planned to assess knowledge and attitude of MBBS students towards organ donation after brain death, to understand influencing factors which prevents donation and to find possible ways to overcome the poor organ donation rate in India.

### MATERIAL AND METHODS

This study was conducted only after receiving approval from Institutional ethical committee.

This was a cross sectional descriptive type of study amongst representative sample 200 of first year MBBS students of Chirayu Medical College and Hospital, Bhopal (M.P). The study group was between 18-25 years of age that were selected through simple random sampling.<sup>11</sup> There were 102 male and 98 female students. A prestructured paper based questionnaire was framed to evaluate knowledge, concept of brain death, attitude and beliefs of the participants towards organ donation along with influencing factors. The questionnaire was pilot tested and validated for clarity of questions and necessary amendments were done. All willing participants were included and explained the objective of this study in classroom. The questionnaires were distributed after obtaining written informed consent from the students. Anonymity of the participants and the confidentiality of data collected were maintained. The descriptive data collected were analyzed and expressed as percentage of the total study population. P value < 0.05 was considered significant.

### RESULTS

Analysis of the data collected for knowledge about organ donation showed that all the participants completely filled the set of questions. The median age of participants was 21.5 years (range: 18-25 years). Only 78.7% (mean proportion) of the total 200 respondents heard and knew about the term cadaveric organ donation. Table 1 shows gender based result of awareness regarding organ donation. There was statistically significant difference in awareness on the basis of gender ( $p=0.0300$ ) with more awareness among female students ( $n=84$ , 85.7%).

Majority of respondents (69.5%) answered that donated organs are used for transplantation only to replace the damaged organ while 3.5% were not sure of purpose of organ donation. Only 21% were familiar with the concept of brain death while 16.5% of respondents knew that organs can be donated during life or after death. 23.5% had no idea about ideal donor (Table2). None of the students had clear comprehension of the legal and procedural aspects of organ donation. Television (32.5%) were the primary source of information for organ donation, followed by newspaper (29.5%), friends or relatives (20%), doctors (16%) and others (2%).

Attitudes of participants were generally positive. 39.5% were willing for organ donation after death and males (47.1%) were more willing for organ donation. None of the respondents had registered for organ donation so far but 41% students wish to register for donation in future after they receive more knowledge regarding deceased organ donation for changing their decision. While 19.5% don't want to donate organs (Table3). Overwhelmingly 75% of respondents want to participate in lectures or sessions for awareness to understand meticulously all the aspects of organ donation.

The unwilling participants mostly had fear of misuse of organs (46.5%) while family disagreement was a reason noted among 29% students and religious factor was observed in only 11% and other reasons in 13.5% respondents (Table2). To promote organ donation after brain death, 75% students were willing to participate in organ donation awareness sessions.

**Table1: Awareness of the term Cadaveric organ donation by Gender**

Awareness Type	Group	Aware	Not Aware	Proportion Aware	Chi-Square Value	p-value	Mean Proportion	S.D
*Cadaveric organ donation	Males	73	29	0.716	5.37	0.020	0.787	0.070
	Females	84	14	0.857				

\*Cadaveric organ donation awareness: Statistically significant difference ( $p = 0.020$ ), with females more aware than males.

**Table 2: Basic knowledge and influencing factors for organ donation**

Variables	N (%)
<b>*Ideal person for organ donation</b>	
Healthy Living person	71(35.5%)
After brain death	42(21%)
After cardiac death	7(3.5%)

<b>All of the above</b>	<b>33(16.5%)</b>
<b>Not sure</b>	<b>47(23.5%)</b>
<b>*Purpose of organ donation</b>	
<b>Transplantation</b>	<b>139(69.5%)</b>
<b>Research</b>	<b>20(10%)</b>
<b>Both</b>	<b>34(17%)</b>
<b>No idea</b>	<b>7(3.5%)</b>
<b>*Know about consent of family/near relative for deceased organ donation</b>	<b>106(53%)</b>
<b>*Know legal aspects of organ donation</b>	<b>0%</b>
<b>*Factors affecting organ donation</b>	
<b>Fear of misuse</b>	<b>93(46.5%)</b>
<b>Family disagreement</b>	<b>58(29%)</b>
<b>Religious beliefs</b>	<b>22(11%)</b>
<b>Others( monetary gain etc)</b>	<b>27(13.5%)</b>

**Table 3: Students attitude towards cadaveric organ donation**

<b>Attitude</b>	<b>Males (N=102) N (%)</b>	<b>Females (N=98) N (%)</b>	<b>Mean Proportion</b>
<b>Already Registered for organ donation</b>	<b>0 (0%)</b>	<b>0 (0%)</b>	<b>0%</b>
<b>Willing to donate organ after death</b>	<b>48 (47.1%)</b>	<b>31(31.6%)</b>	<b>39.5%</b>
<b>Want to know more for decision to donate</b>	<b>37 (36.3%)</b>	<b>45 (45.9%)</b>	<b>41%</b>
<b>Do not want to donate</b>	<b>17(16.6%)</b>	<b>22(22.5%)</b>	<b>19.5%</b>
<b>Wish to participate in awareness campaigns</b>	<b>83(81.4%)</b>	<b>67(68.4%)</b>	<b>75%</b>

## DISCUSSION

This study on representative sample of first year medical students is significant as they are future doctors and should be well aware of procedure of procurement, harvesting and allocation of organ, concept of brain death, risk involved in live organ donation, legal concerns and cater that knowledge in general population to enhance organ donation.<sup>12</sup>

### Knowledge

The detailed knowledge about various aspects of organ donation was not satisfactory. In present study, 78.7% of respondents heard and knew about cadaveric organ donation with more awareness among female students (85.7%) which is similar to that noted by Gerbi et al among health care professionals but didn't mention any gender based association.<sup>6</sup> While findings were significantly lower than that reported by Ray MK et al (87.3%) on 1<sup>st</sup> year medical students.<sup>13</sup> This difference may be due study setting or exposure on the topic during lectures. In Current study 69.5% of respondents knew about organ transplantation which is close to findings of Maheshwaran B et al (68%) among medical and dental students.<sup>14</sup> Further in this study only 21% of the participants were familiar with the concept of organ donation after brain death which is nearly close to the findings of shrivastav VK et al who mentioned 27.5% of undergraduate medical students had understanding of brain death.<sup>15</sup> But in contrast to this was reported by Uplap PA et al among postgraduate medical students (75.46%) which could be related to significantly higher knowledge among students after completion of MBBS.<sup>16</sup> Wig et al mentioned that knowledge about brain death is very low in general population of metro

city.<sup>17</sup> Ghorbani F et al also reported in a study about less awareness of concept of brain death which is an obstacle for organ donation.<sup>8</sup>

In present study the clarity about legal aspects of organ donation among students was nil which is in contrast to findings of Ramadurg UY et al where only 44.3% of medical students in Karnataka were unaware of legal aspects of organ donation. This variation in observation could be due to different geographical area of study.<sup>18</sup> While 53 % of participants in current study were aware that family or relative of deceased can give consent for organ donation which is close to findings of sunil DS et al on general population (50%).<sup>2</sup>

In present study television were the main source of information about organ donation similar to that noted by Gerbi et al, Mane VK et al and Suchitra ST et al.<sup>6,10,19</sup>

### Attitude

Overall moderately positive attitude towards cadaveric organ donation was observed. Though none of the respondents had registered for organ donation but 39.5% of students were willing for organ donation after death. Similar observations were noted by Gerbi et al among medical professionals and Ray MK et al among 1<sup>st</sup> year MBBS students (37.3%).<sup>6,13</sup> In many previous studies researchers mentioned that females were more willing for organ donation after death.<sup>20</sup> While in current study males had better attitude and more willing similar to that reported by Boulware et al and Chkrahdar K et al.<sup>21,22</sup> In present study, many participants wanted to know further details about organ donation to take decision to donate and 19.5% of the respondents did not wish to ever

donate organs which is parallel to the findings of Sahu RK et al and in contrast to that noted by Ramadurg UY et al among first year medical students (7%).<sup>3,18</sup> Moreover the reason for unwillingness towards organ donation was mainly attributed to feeling of fear that organs could be misused (46.5%) which is close to observation of Bharambe VK et al (50%).<sup>23</sup>In present study only 11% believed religion to be an influencing factor affecting organ donation while other studies reported that no religion is against organ donation.<sup>24</sup> But an overwhelming positive attitude was observed that 75% of the participants wished to participate in awareness lectures in future to attain and spread knowledge about organ donation after brain death in view to save many lives.

## CONCLUSION

Though medical students in this study had fair knowledge about organ donation but understanding of concept of brain death was poor and this needs to be addressed keeping in view that these future doctors act as link to general public and for promoting cadaveric organ donation proper clarity on this is needed. Study also revealed that the legal details of organ donation was least known and emphasis should be on detailed awareness lectures as a part medical curriculum. Also moderately positive attitude was seen among students which can be enhanced by endorsing series of properly designed sessions on every aspect of organ donation and transplantation. This knowledge should be propagated at community level with support of NGO and involvement of government policies for ethical procurement of organs to meet the demand.

## Authorship

The author has contributed to the concept and design of the research, data collection and its analysis, drafting work, interpretation with conclusion of the study.

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