

# Knowledge And Attitude Towards Organ Donation And Transplantation: A Cross-Sectional Study Among The Medical Students Of A Tertiary Healthcare Institute In Northeastern India

Dr. Lourembam Frieny, Dr. Seram Elizabeth Devi, Dr. Memchoubi Ph.

(Postgraduate Trainee, Department Of Forensic Medicine & Toxicology, Regional Institute Of Medical Sciences, Imphal, Manipur, India)

(Senior Resident, Department Of Forensic Medicine & Toxicology, Regional Institute Of Medical Sciences, Imphal, Manipur, India)

(Professor, Department Of Forensic Medicine & Toxicology, Regional Institute Of Medical Sciences, Imphal, Manipur, India)

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## Abstract:

**Background:** The Transplantation of Human Organs and Tissues Act (THOTA) of 1994 regulates the removal, storage, and transplantation of human organs for therapeutic purposes and aims to prevent the commercial trade of human organs. Despite this legislation, a significant portion of the population remains unaware of the relevant rules and regulations, resulting in misapprehension and doubts. The medical fraternity plays a huge role in clearing these doubts among the general population.

**Materials and Methods:** A total of 400 undergraduate medical students from RIMS from the 1<sup>st</sup> year to the final year were randomly selected using the Cochran sampling method. Self-structured questionnaires were given and the students were asked to answer the questionnaire. The data collected was then analyzed using SPSS version 26 software and was summarized in terms of mean and percentage. Chi-square test was used to find out the association between the variables.

**Results:** The overall awareness of the rules and regulations of organ donation and transplantation among medical students was found to be low, at only approximately 48%. Nevertheless, a majority (70%) expressed a positive attitude towards becoming organ donors and spreading awareness to the general public.

**Conclusion:** There is a pressing need for enhanced awareness about organ donation and transplantation for both the medical fraternity and the general public to dispel existing uncertainties and encourage organ donation.

**Key Word:** Organ donation, THOTA, knowledge, awareness

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## I. Introduction

Each day, many a life are being saved because of organ donation and transplantation- whether it is live donation or deceased organ donation. Despite recent improvements, people have various misconceptions and apprehensions about the risks & benefits of organ transplantation. There also exist multiple laws and regulations regarding human organ donation & transplantation which most people do not have adequate knowledge of. Organ Donation and Transplantation are regulated by the government in India following the rules of the Transplantation of Human Organs and Tissues Act, 1994 (THOTA 1994) (amended in 2011). The Act regulates the removal, storage, and transplantation of human organs for therapeutic purposes and for the prevention of commercial dealing of human organs.<sup>1</sup> The medical fraternity plays an important role in spreading knowledge and awareness about organ donation and clearing people's doubts. So, it becomes pivotal to assess the knowledge & attitude of medical students regarding organ donation and transplantation. The study aims to assess the knowledge & attitude towards organ donation among the undergraduate medical students of RIMS.

## II. Material And Methods

It was a cross-sectional study conducted at the Department of Forensic Medicine and Toxicology, Regional Institute of Medical Sciences, Imphal from October 2024 to December.

**Study Design:** Cross-sectional study

**Study Location:** This study was done in the Department of Forensic Medicine & Toxicology, Regional Institute of Medical Sciences, Imphal, Manipur.

**Study Duration:** October 2024 to December 2024.

**Sample size:** 400 undergraduate medical students.

**Sample size calculation:** Sample size was calculated using the formula of Cochran (1977)<sup>2</sup>. A minimum sample size was calculated to be 384. However, a total of 400 samples were collected for the study

**Subjects & selection method:** The study population included of 400 undergraduate medical students of RIMS from the first phase to the final phase selected by simple random sampling method

**Inclusion criteria:** All undergraduate medical students of RIMS from first phase to the final phase

**Exclusion criteria:** Students who were not willing to participate in the study and interns

#### **Procedure methodology:**

After verbal informed consent was obtained, a self-structured questionnaire was used to collect the data of the recruited participants. The questionnaire included socio-demographic characteristics such as age, gender, address and year of MBBS study in the first part, the second part included ten questions to assess the knowledge of the participants for organ donation and transplantation, and the third part of the questionnaire having nine questions to assess the attitude towards organ donation and transplantation.

#### **Statistical analysis:**

Data collected were checked for consistency and completeness. Data entry was done using Statistical Package for Social Sciences version 26 (Armonk NY: IBM Corp). The data was then summarized in terms of mean, percentage and frequency and Chi-square test was to find out the association between the variables. A p-value of <0.05 was considered statistically significant.

### **III. Result**

A total of 400 participants with 100 from each year of MBBS study was included in the study and majority of the participants were urban dwellers (Table.1). The overall knowledge about organ donation among the participants was 47.88%. A statistically significant association was found between knowledge levels and the year of study ( $p < 0.05$ ), with final-year students scoring the highest. However, no significant association was observed between knowledge levels and the participants' sex or address ( $p > 0.05$ ). Table 2 illustrates the knowledge distribution across various questions. 92.3% were aware of the legality of organ donation in India. Only 41.3% knew that a medical board is necessary to declare brain death, 23% believed individuals over 75 years could register for organ transplantation. 51.5% recognized the requirement for hospital registration under THOTA for organ donation. The year-wise knowledge distribution indicated that final-year students had the highest percentage of correct answers (55.8%), whereas second-year students had the lowest (42.6%). Knowledge score for each participant was calculated and categorized into three levels: Low: 0-4 right answers, Average: 5-7 right answers, and High: 8-10 right answers. Majority of the first-year and final-year participants had average knowledge scores while most of the second-year and third-year participants had low knowledge scores (Fig.1). 70% of participants expressed willingness to become organ donors, with 74.8% willing to donate to family members. 90% cited helping others as their primary motive for donation. 33% had concerns about the efficiency and fairness of the organ donation system. More than 50% of participants agreed that increased awareness and the role of the medical fraternity in promoting organ donation are crucial. 60% were willing to counsel family members and friends about organ donation. However, no significant association was found between attitude toward organ donation and the participants' year of study, sex, or address ( $p > 0.05$ ).

**Table 1: Demographic Profile of the participants**

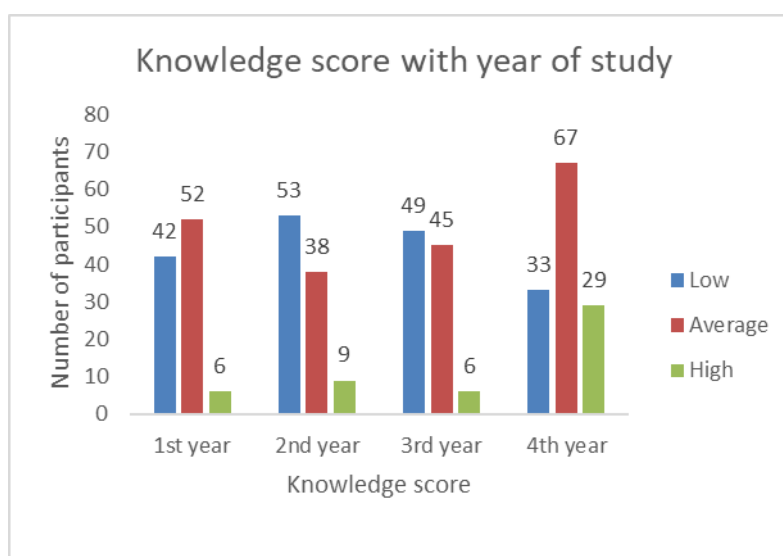
Parameters		1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year	Total
Sex	Male	35	47	57	55	194
	Female	65	53	43	45	206
	Total	100	100	100	100	400
Address	Urban	59	75	81	64	279
	Rural	41	25	19	36	121
	Total	100	100	100	100	100

**Table 2: Knowledge questions distribution**

Sl.No	Questions	Right Answer	Wrong Answer	Answer not known
1	Legality of organ donation in India	92.3%	1.8%	6%
2	Only single organ donation after brain-dead	58%	12.8%	29.2%
3	Need for family or next of kin's consent	33.8%	35.8%	30.4%
4	Presence of time limit for organ procurement	59%	12.3%	28.7%
5	Legality of live organ donation in India	53.5%	22.8%	23.7%
6	Medical board necessary to announce brain-dead	41.3%	24.3%	34.5%
7	Persons >75yrs can register for organ transplantation	23%	26.5%	40.5%
8	Organ procurement by monetary compensation	29.5%	30%	40.5%
9	<18yrs can become a live organ donor	37%	33.2%	29.8%
10	Registration under THOTA is necessary for hospital to undergo organ donation & transplantation	51.5%	6%	42.5%

**Table 3: Year-wise knowledge score distribution**

Year of study	Right answer (%)	Wrong answer (%)	Answer not known (%)
First	49.4	18.6	32.0
Second	42.6	18.5	38.9
Third	43.7	18.5	37.8
Fourth	55.8	22.5	21.7
<b>Combined knowledge score- 47.88% Year of Study</b>			



#### IV. Discussion

The findings suggest that the overall knowledge about organ donation among medical students is low, with less than half demonstrating adequate awareness. However, knowledge levels improve with advancing years of study, indicating the impact of medical education. This aligns with studies by Schaeffner ES et al.<sup>3</sup>, Robert P et al.<sup>4</sup>, and Jadhav R et al.<sup>5</sup>, which also found that senior students had better knowledge about organ donation. Unlike studies conducted by Alex P et al.<sup>6</sup>, Darlington et al.<sup>7</sup> and Almutairi et al.<sup>8</sup>, which reported higher knowledge levels among females, this study found no gender-based differences. The willingness to donate organs was high among participants, particularly among family members. These findings are consistent with studies by Dibaba FK et al.<sup>9</sup> in Ethiopia and Adithyan GS et al.<sup>10</sup> in Kerala who recorded a high willingness to donate organs among the participants. Furthermore, the primary motivation for helping others through organ donation mirrors observations from a study in Saudi Arabia by Woodman et al.<sup>11</sup> Despite this willingness, significant concerns about the organ donation system's effectiveness remain which is an important issue that needs to be addressed with care and precision. This concern can be stemmed from various reasons like organ transplant rackets along with poor law and order situation in some parts of the country. The need for increased awareness was highlighted by most participants, similar to conclusions drawn in studies by Ghose TK et al.<sup>12</sup> (Pune) and Robert P et al.<sup>4</sup> (Canada). Overall, the study's findings align with research by Harbour et al.<sup>13</sup> (New Zealand), showing that while knowledge about organ donation remains inadequate, willingness to donate is high.

## **V. Conclusion**

This study highlights a critical gap in knowledge about organ donation and transplantation among medical students, with an overall knowledge level below 50%. Given the medical fraternity's role in educating the public, this gap is concerning. A positive correlation between knowledge and the year of study was observed, with final-year students demonstrating the highest awareness. Forensic Medicine and other related disciplines provide valuable insights into the legal aspects of organ donation, but more structured teaching and practical training programs are needed. To bridge this knowledge gap, better curriculum implementation and hands-on training programs are essential for enhancing medical students' understanding of organ donation and transplantation. The willingness to motivate others may also increase with clearer knowledge and more awareness.

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