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Title page

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## Awareness and Attitude of Medical Undergraduate Students towards Organ Donation: A Cross-Sectional Study

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### ABSTRACT

**Background.** - Organ donation is a safe and effective practice for donor and recipient. The purpose of this study was to understand the attitude and measure the awareness of medical undergraduates towards organ donation.

**Materials and Methods.** Present cross sectional observational study was carried out in a medical college of north Gujarat for a period of 6 months (June to December 2022). A total of 409 students were the final study participants in the study analysis. Data collection tool and data collection- Self-administered structured Questionnaire was used to collect study data.

**Results.** Out of the 409 study participants 405 (99%) had heard about organ donation programme from one or more sources of information. About 99% of the students were aware of organ donation programmes. The mean age of the study participants was 19.45±1.25yrs and age range of 17-24yr. Almost half of the participants were aware about how to obtain organ donation card (21.5%) and NHS Organ Donor Register (21.8%). Majority (92.4%) had opined that organ donation is to save someone's life but only 40% would like to donate organ in future or after death without any hesitation and 2% said absolutely no for organ donation ( $p>0.05$ ).

**Conclusion.** -The study showed that most of the medical students had accepted organ donation as legal by Indian law.

**Keywords:**

organ donation, organ donor, life saving, recipient, medical graduates

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## **INTRODUCTION**

Ronald Lee Herrick became the first person to donate his organ, a kidney, to his identical twin brother in 1954. Following this, the doctor, who performed the surgery, Dr Josephy Murray, received the Nobel Prize on Physiology or Medicine in 1990 for advances in organ transplantation [1]

Organ donation is described as allowing a person's organ to be lawfully removed for the purpose of transplantation as a treatment, either while the donor is alive or after death with the approval of the next of kin [2]. There is still a lack of understanding about organ donation. Community lack of understanding of the importance, procedures, rewards, and legal concerns surrounding organ donation could be one of the causes of this tragic situation [3]. The greatest method to begin is to raise awareness of organ donation among youth, particularly those in the medical field, because they will be the best people to spread information to the community. Medical students can play an important role in promoting organ donation as future doctors, as they are the most important link in the organ procurement process, by teaching and inspiring the public to donate their organs [4].

Only 0.08% of Indians donate their organs when compared with 70%–80% of Spaniards and Belgians [5]. About 0.5 million people in India die every year due to nonavailability of organs [6].

According to a World Health Organization, around 0.01 per cent of people in India donate their organs after death [7]. Let us raise awareness about the necessity of organ donation among people all over the world so that we can save the lives of many people whose organs have failed.

Evaluating the knowledge and understanding of organ donation is critical for future organ supply. Considering this, the purpose of this study was to understand the attitude and measure the awareness of medical undergraduates towards organ donation.

## **MATERIALS AND METHODS**

Present cross sectional observational study was carried out in a medical college of north Gujarat for a period of 6 months (June to December 2022). Undergraduate medical students learning from 1<sup>st</sup> to 3<sup>rd</sup> professional year in the same institute were enrolled as a study participant. A total of 409 were the final study participants in the study analysis. Students not willing to participate and absent on the day of data collection were excluded from study.

Data collection tool and data collection- Self-administered preformed structured Questionnaire was used to collect study data. The questionnaire was in English language. In each professional year classes with prior permission from principal two-hour slot was made available to collect data and to show inspiring informative video for fair understanding about the organ donation and its importance for the mankind at the end of data collection session. Investigator had explained purpose of study and administered questionnaire to each student on given time slot for each professional year. Students were requested answer all questions to in front of investigator. Sufficient time was given to full fill questionnaire and ask any doubts while answering questions. At the end of allotted time questionnaire was collected by investigator and checked for any missing data. The questionnaire includes basic demographic information such as age, gender, residence, professional year as well as knowledge awareness and attitude related questions on organ donation. Knowledge section had both open-ended and closed-ended questions. Each correct question had assigned a score of 1. Subjects with a

score of 50% or higher deemed to have acceptable knowledge. A score of less than 50% deemed to have inadequate knowledge about organ donation. Attitude questions consisted of 4-point Likert scale of agreement.

**Data Analysis:** The responses of the participants were analyzed statistically using SPSS v.26. Categorical variable results presented in frequency (percentages) and continuous variable results in mean & SD or Median and quartile depending on distribution of variable. For inferential statistics, Chi Square with 95% confidence intervals was used for categorical data, non-parametric tests for ordinal data, and parametric tests such as T Test/ANOVA used for quantitative data. P value of less than 0.05 reported as statistically significant.

**Ethical clearance –** Ethical clearance was received from institutional ethics committee before the start of study. Written Informed consent from each participant was obtained after explaining the purpose of study

## **RESULTS:**

A total of 409 medical undergraduate responded study questionnaire during data collection period with mean age of study participants was 19.45±1.25yrs and age range of 17-24yrs. female (56.2%) had slightly more in number than male. More than half (58.2%) were from 1<sup>st</sup> professional year as there were two batches of 1<sup>st</sup> professional year (Late admissions due to Covid). Students from 2<sup>nd</sup>(23.5%) and 3<sup>rd</sup>(17.8%) professional year had less participation due to less attendance in the class on scheduled date and time of data collection. Out of 409 students 405 (99%) had heard about organ donation programme from one or more source of information.[Table 1]

Answer for source of information most frequently responded were college/school (46%) and social media (27.6%). Very less had awareness about how to obtain organ donation card (21.5%) and (21.8%). [Table 1]

On analysing knowledge about organ donation questions, it was understood that 94.4% were knew that organ donation is legal by Indian law, 88.3% could answer Who can donate the organs, 89.5% could answer which organs can be donated and 27.4% could respond correctly to question that in how much time after death organ can be donated. [Table 2] out of 409 participants 374 (91.4%) had acceptable knowledge on organ donation.

On analysing attitude of the study participants towards organ donation questions it was understood that for all questions students had mostly answered as agree (43.5%-55.7%) and few responded as a strongly agree (18.6%-39.6%). [NHS Organ Donor Register Table 3]

Majority (92.4%) had opined that organ donation is to save someone's life but only 40% would like to donate organ in future or after death without any hesitation and 2% said absolutely no for organ donation.[Table 4 and figure 1]

Inferential analysis was carried out to see any difference in knowledge, opinion, and attitude of medical undergraduates in terms of gender and professional years and it was found that there was no significant difference in knowledge, opinion, and attitude among male and female participants as well as years of professional learning ( $p>0.05$ )

**Table 1: Demographic characteristics of study participants**

Age in yrs.	Frequency	Percent
17	20	4.9
18	75	18.3
19	116	28.3
20	122	29.8
21	55	13.4
22	18	4.4
23	2	0.5
24	1	0.2
Age in yrs (mean+sd; range)	19.45+1.25 (17-24)	
Gender		
Female	230	56.2
Male	179	43.8
MBBS professional year		
1st MBBS	240	58.7
2nd MBBS	96	23.5
3rd MBBS	73	17.8
Heard about organ donation	405	99
How did you know about organ donation?		
College/school	188	46
Social media	113	27.6
Newspaper	54	13.2
Relative	35	8.6
TV advertising	17	4.2
Radio advertising& Neighbours	2	0.5
Aware about how to obtain organ donation card?	88	21.5
Aware of the NHS Organ Donor Register	89	21.8
Knowledge score (mean+sd; range)	3.6+0.82 (1-5)	

**Table 2: knowledge among study participants towards organ donation**

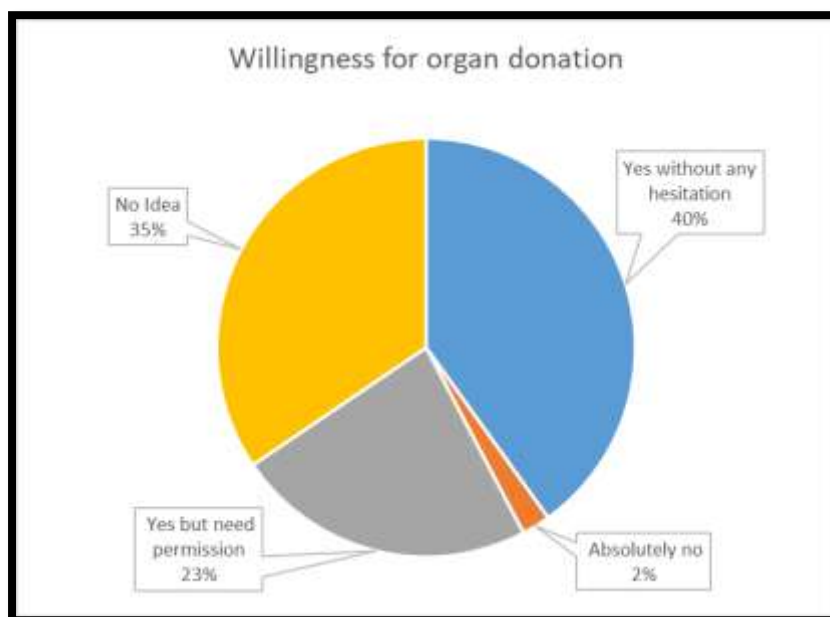
Questions	Correct responses	Incorrect responses
Organ donation is legal by Indian law?	386 (94.4%)	23 (5.6%)
Who can donate the organs?	361 (88.3%)	48 (11.7%)
Which are the organs that can be donated?	366 (89.5%)	43 (10.4%)
Once patient expired in how much time organ can be donated?	112 (27.4%)	297 (72.6%)
At what age can someone become a donor?	248 (60.6%)	161 (39.4%)

**Table 3: Attitude of the study participants towards organ donation**

Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Organ donation is a safe and effective practice for donor and Recipient?	1 (0.2%)	6 (1.5%)	132 (32.3%)	194 (47.4%)	76 (18.6%)
Organ donation is consistent with my values and belief?	4 (1%)	7 (1.7%)	86 (21%)	228 (55.7%)	84 (20.5%)
Organ donation should be supported?	3 (0.7%)		29 (7.1%)	213 (52.1%)	162 (39.6%)
Organ donation allows something positive to come out of a person's life?	1 (0.2%)	2 (0.5%)	40 (9.8%)	220 (53.8%)	2 (0.5%)
Considering oneself as a donor in future?	4 (1%)	4 (1%)	140 (34.2%)	178 (43.5%)	83 (20.3%)

**Table 4: opinion on organ donation**

What is your opinion on organ donation? (n=409)	Frequency	Percent
To save someone's life	378	92.4
Out of compassion /sympathy	8	2
As a responsibility	19	4.6
For money	4	1

**Figure 1: Students willingness for organ donation**

## **DISCUSSION**

In this study, 409 medical undergraduates participated, among this group of 409 individuals, 56.2% were female while 43.8% were male. These results were notably akin to those reported in the research conducted by Abdulrahman et al., where most participants were female, comprising 74%, and the minority were male, comprising 26%. In present study, the average age of the subjects was calculated to be 19.45 years. Approximately 99% of the participants demonstrated awareness regarding organ donation, with 63 % expressing willingness to donate their organs. Our findings indicated that a significant proportion of students (92.4%) held the belief that organ donation can potentially save a life, aligning closely with the results from the studies carried out by Abdulrahman et al., in 2015 [8].

Medical undergraduate students show a positive attitude towards organ donation [9], but students exhibit low knowledge and attitudes towards organ donation and transplantation, with online sources being their primary information channels [10]. A study on medical students in India reveals that while a majority have satisfactory knowledge about organ donation, there is a gap between knowledge and attitude, emphasizing the need for educational interventions and curriculum inclusion [11]. Furthermore, a cross-sectional study highlights that although a significant percentage of participants are aware of organ donation, their willingness to become donors is hindered by negative attitudes, often influenced by religious beliefs and family disapproval [12].

Overall, findings of our study underscore the importance of enhancing awareness and attitudes among medical students and the general population to bridge the gap between knowledge and practice in organ donation.. Moreover, in this study, around 66% of the students agree that Organ donation is a safe and effective practice for donor and recipient. Additionally, a few students within the current study expressed concerns that donated organs could be subject to misuse, abuse, or misallocation. Various reasons contributed to this unwillingness, encompassing religious prohibitions, familial opposition, and psychological distress. Recently, educational initiatives have been recommended as a novel strategy to address the scarcity of organs for transplantation. It is imperative to educate the public and students alike on the intricacies of transplantation, fostering a culture of commitment towards organ donation. The undergraduate medical and dental curriculum should incorporate fundamental knowledge on the procedures and ethical considerations associated with organ transplantation and donation, equipping future healthcare practitioners to serve as knowledgeable proponents of this cause

## **CONCLUSION:**

This research demonstrates that the level of awareness regarding organ donation among undergraduate medical students is notably high. According to the findings of the research, educational institutions such as colleges and schools, along with social media play a significant role in imparting knowledge about organ donation to undergraduate medical students. Moreover, the students exhibit an understanding that body donation and organ

donation are distinct concepts. While there exists a substantial knowledge base concerning kidney and eye donations among the students, the awareness regarding pancreas donations is comparatively lacking. The majority of students express a willingness to donate their organs in order to contribute towards saving the lives of individuals in need. Conversely, a small proportion of students are hesitant to participate in organ donation due to psychological concerns. Additionally, there are students who harbor concerns that donated organs may be subject to misuse, abuse, or misappropriation. Students express a preference for encouraging their family members, relatives, colleagues, and friends to consider organ donation. Furthermore, students suggest that incentives such as financial benefits, awards, and healthcare support for donor families provided by the government would be more impactful in promoting organ donation.

## DECLARATION

Human subjects: Consent was obtained from all participants in this study.

All authors have declared that no financial support was received from any organization for the submitted work.

Conflict of interest -none

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