

Original Research article

A Cross-Sectional Study on Knowledge and Attitude about Organ Donation among Medical and Paramedical Students

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ABSTRACT

Introduction: Organ failure has emerged as one of the leading causes of death that can be managed if there are willing donors. Approximately one lakh people across the nation die each year due to organ failure. A wide gap exists between the number of transplants awaited and the organ available.

Objective: To find out and compare the knowledge and attitude regarding organ donation among medical and paramedical students.

Materials and Methods: This was a questionnaire based cross sectional study. Questionnaire consisted of 13 questions related to knowledge and 12 questions related to attitude towards organ donation. 930 students (482 MBBS, 256 MLT, 4 Optometry and 188 BPT students) participated in this study after giving a valid consent.

Results: 10% of the study participants have never heard the term organ donation and 17.4% are not aware of why an organ donation is done. 60.8% did not know correctly about brain death. 56.5% got poor scores (scores of 0 – 4) in knowledge related to various scenarios. MLT students (58.2%) had better scores in handling scenarios as compared to MBBS (41.5%), BPT (28.7%) and Optometry. 17% of MLT students had good overall knowledge as compared to MBBS students (9.1%). 50% of BPT students had poor knowledge. 50% of the participants had a positive approach towards organ donation and 40.1% of the participants had ethical issues with organ donation. Almost 50% of the participants agreed to donate their organs and 40.1% of the participants say it as unethical to remove organs before heart stops beating. About 49.4% agree that organ donation is not troublesome.

Conclusion: Students of medical/ paramedical field have shown poor knowledge and attitude towards organ donation. This has to change as people in this field have to have better knowledge and approach to help the community.

INTRODUCTION

Organ failure has emerged as one of the leading cause of death that can be managed if there are willing donors. Approximately one lakh people across the nation die each year due to organ failure. A wide gap exists between the number of transplants awaited and the organ available.¹ There is an urgent need for people to start thinking in a new direction and start to donate their organs in order to save the lives of many who are suffering from organ failure.

The issue of organ donation is complex and multifactorial involving ethical, legal, medical and societal factors. Countries around the world have reported that people's attitude towards organ donation are influenced by factors are knowledge, education, and religion.^{2,3,4} One of the major setback is the illegal organ trading in several developing and under developed countries. Government of India has come up with a new legislature by introducing "Transplantation of Human Organs and Tissues Rules, 2014". Here the rules, regulations and laws regarding organ donation is laid down and is applicable throughout the country.⁵ Organ donation should not be an example of unethical commerce; we must restore its value.

Hamed H et.al .in his study on 359 Egyptian medical students found that only 39% have a good knowledge about organ donation and sighted religious and other fixed beliefs to be the cause of lack of poor knowledge among the rest.² Babaie M et.al in their study of about 150 nurses found a high attitude towards organ donation³ but a study done by Saleem T et.al. found very poor response in Pakistan owing to religious stigma.⁴ Arya S et. al. found out that only 80% of medical and paramedical students were aware of eye donation and only 76% were having good knowledge about eye donation.⁶

In view of the importance of organ donation this study is done to compare the knowledge and attitude regarding organ donation among medical and paramedical students in our institute, as this would give us an insight about knowledge and attitude among medical and paramedical students.

OBJECTIVES

- To find out the knowledge and attitude regarding organ donation among medical and paramedical students.
- To compare knowledge and attitude regarding organ donation among medical and paramedical students.

METHODOLOGY

This Cross sectional study was done for a period of 3 months from December 2019 to February 2020) after obtaining institutional ethical committee clearance number IEC/DEC/2/2019. Study population and selection criteria– Sample selection was based on universal sampling method were all the students admitted to medical and paramedical courses in Kanachur Institutions amounting to a total of 1150 students - 600 Bachelor of Medicine and Bachelor of Surgery (MBBS), 300 B. Sc. Medical Laboratory Technology (MLT), 240 Bachelor of Physiotherapy (BPT) and 10 Optometry students were approached for the purpose of this study during the study period of which 930 students (482 MBBS, 256 MLT, 4 Optometry and 188 BPT students) returned completely filled questionnaire which were considered for analysis. There were no specific exclusion criteria.

Data collection – Data was collected by a custom made peer reviewed questionnaire contain 25 questions of which it had 13 questions pertaining to knowledge and 12 questions related to attitude regarding organ donation (the questionnaire is given has annexure). Knowledge based questions in our questionnaire was categorised and the total knowledge scores obtained were divided into 3 categories as- Category 1 – Poor (Scores of 0 – 4), Category 2 – Average (Scores from 5 – 9), Category 3 – Good (Scores from 10 – 13) *every correct answer was given a score of 1

The questionnaire was distributed and collected in the presence of principal investigator after the class hours in the classroom. The principal investigator explained the purpose of the study to students and the

written informed consent was obtained, the participants were given 20 minutes to fill up the questionnaire. Questionnaires were coded to maintain confidentiality.

Analysis/ statistical tools: Descriptive statistics done for questions related to knowledge and attitude. Chi-Square test was used and the statistical significance is considered if p value < 0.05. The data was entered on Microsoft Excel 2013 and later transferred to SPSS Ver. 16 for statistical analysis.

RESULTS

After obtaining a written consent, 930 participants belonging to MBBS (n=482), MLT (n=256), BPT (n=188) & Optometry (n=4) took part in the study. Mean Age of the participants of the present study was 19.3 ± 1.7 years. The study had almost equal distribution of males (47.6%) and females (52.4%).

Our questionnaire had two sets of questions, which were related to knowledge, and attitude of the participants.

Knowledge based questions:

Regarding the knowledge about the term “organ donation” 90% (837) participants answered “Yes”, whereas a significant amount of participants (93) among medical and allied health were not aware of the term organ donation to a tune of 10% of which 87 of them were Paramedical participants. So 19.42% of Paramedical participants were unaware of the term organ donation.

For the question on the purpose of organ donation the following response was obtained-

Table 1- Purpose of organ donation.

	Frequency (n)	Percent (%)
To save someone's life	768	82.6
Out of compassion	22	2.4
For money	11	1.2
As a social responsibility	101	10.9
Don't know	28	3.0

Only 60.8% of the participants were able to choose the correct answer. Rest of the 39.2% i.e. 365 participants did not know the description of brain death which is quite significant. Most of the participants either don't know or completely unaware of the formalities of organ donation. Here, the number is highly significant to a tune of 49% of the study participants. only 51% have selected a correct answer “Yes”.

Q. Brain death is confirmed by an EEG (Electroencephalogram) study of the donor. The correct answer “No” was given by only 119 participants accounting to 12.8% which is highly significant poor performance. Rest of the study participants 87% are completely unaware of the reporting protocol of brain death.

Q. Is there a need for licensed physician to give consent after family approval? The correct answer “yes” was given by 454 participants amounting to 48.8% of the study population. A little more than 50% again have no awareness about the organ donation protocol.

Q. Who are suitable for organ donation of liver, heart and kidney after a physician has diagnosed them to be brain dead. To test their knowledge on this question seven scenario based sub-questions were given and answers obtained was categorised into four groups based on their scoring.

Table 2- Performance in scenario based questions.

Categories	Frequency (n)	Percent (%)
Very Poor	204	21.9
Poor	321	34.5
Average	311	33.4
Good	94	10.1

In the scenario based questions very significant number of participants 56.5% got poor and very poor scores whereas only a small number n=94 (10%) got good scores.

Q. Regarding the question on the possible organs that can be donated correct answer was given by 81% of the participants and 19% gave incorrect answers.

Knowledge category:

Table 3- Performance in knowledge related questions.

	Frequency (n)	Percent (%)
Poor	242	26.0
Average	594	63.9
Good	94	10.1

Significant number of the study participants (n=242, 26%) showed poor performance to knowledge related questions on organ donation which is quite high. Majority of the study population had average knowledge on organ donation but strikingly only 10% were able to achieve good scores.

Table 4- Gender vs knowledge on organ donation.

		Knowledge category			Chi-square value	p value
		Poor	Average	Good		
Gender	Male	107 (24.2%)	281 (63.4%)	55 (12.4%)	5.618	0.060
	Female	135 (27.7%)	313 (64.3%)	39 (8%)		
Total		242 (26%)	594 (63.9%)	94 (10.1%)		

*Pearson Chi-Square

Both male and females fared equally in terms of knowledge related questions on organ donation. There is no significant difference with respect to gender and knowledge on organ donation.

Table 5- Education vs knowledge on organ donation.

Education	Knowledge category			Chi-square value	p value
	Poor	Average	Good		
MLT	32 (12.5%)	180 (70.3%)	44 (17.2%)	92.850	0.000
MBBS	117 (24.3%)	321 (66.6%)	44 (9.1%)		
Optometry	0 (0%)	4 (100%)	0 (0%)		
BPT	93 (49.5%)	89 (47.3%)	6 (3.2%)		
Total	242 (26%)	594 (63.9%)	94 (10.1%)		

*Pearson Chi-Square

With educational status and knowledge comparison, we found that 9.1% of MBBS have good scores as compared to MLT students who had 17.2%. Most of the BPT students (n=93, 49.5%) had poor knowledge regarding organ donation. The knowledge of MLT students was better compared to MBBS, BPT, Optometry students and this finding was found to be statistically significant (p<0.05).

Table 6- Religion vs knowledge on organ donation.

		Knowledge category			Chi-square value	p value
		Poor	Average	Good		
Religion	Hindu	179 (28.7%)	389 (62.3%)	56 (9.0%)	10.132	0.119
	Christian	14 (25.0%)	34 (60.7%)	8 (14.3%)		
	Muslim	46 (19.7%)	159 (67.9%)	29 (12.4%)		
	Others	3 (18.8%)	12 (75.0%)	1 (6.3%)		
Total		242 (26.0%)	594 (63.9%)	94 (10.1%)		

*Pearson Chi-Square

Study participants from across the religions show near similar performance in knowledge related questions and here is no statistically significant difference w.r.t. religion and knowledge.

Table 7- Religion and Organ Donation.

		Religion allow Organ Donation			Chi-square value	P value
		Yes	No	Don't know		
Religion	Hindu	404 (64.7%)	90 (14.4%)	130 (20.8%)	97.265	0.000
	Christian	43 (76.8%)	5 (8.9%)	8 (14.3%)		
	Muslim	69 (29.5%)	73 (31.2%)	92 (39.3%)		
	Others	9 (56.3%)	4 (25.0%)	3 (18.8%)		
Total		525 (56.5%)	172 (18.5%)	233 (25.1%)		

*Pearson Chi-Square

When knowledge of whether their religion permits to do organ donation was analysed we found that majority of Hindus (n=404, 64.4%) and Christians(76.8%) answered yes as compared to Muslims (n=69, 29.5%). This is statistically very highly significant ($p < .05$).

Table 8- Gender vs Religion allowing Organ Donation.

		Religion allow Organ Donation			Chi-square value	P value
		Yes	No	Don't know		
Gender	Male	246 (55.5%)	84 (19.0%)	113 (25.5%)	0.297	0.862
	Female	279 (57.3%)	88 (18.1%)	120 (24.6%)		
Total		525 (56.5%)	172 (18.5%)	233 (25.1%)		

*Pearson Chi-Square

Male and female study participants didn't show any significant difference. Their knowledge was on par with each other.

Table 9- Education and case Scenario on organ donation.

Education	Scenario Category				Chi-square value	P value
	Very Poor	Poor	Average	Good		
MLT	30 (11.7%)	77 (30.1%)	106 (41.4%)	43 (16.8%)	99.616	0.000
MBBS	90 (18.7%)	192 (39.8%)	154 (32.0%)	46 (9.5%)		
Optometry	0 (0.0%)	2 (50.0%)	2 (50.0%)	0 (0.0%)		
BPT	84 (44.7%)	50 (26.6%)	49 (26.1%)	5 (2.7%)		
Total	204 (21.9%)	321 (34.5%)	311 (33.4%)	94 (10.1%)		

*Pearson Chi-Square

When knowledge based on scenarios were tested in comparison to the educational levels MLT (58.2%), MBBS(41.5%), Optometry(50%) students scored average above scores as compared to BPT (28.7%) students and this is found to highly significant statistically ($p < 0.05$).

Attitude related questions:

Only about 107(22.2%) of the MBBS students, 32(12.5%) of MLT, 28(14.9%) of BPT and 1(25%) of the optometry students have attended a workshop related to organ donation which is lower than what is expected from the medical and paramedical students.

Majority of them, 376 (78.01%) of the MBBS, 196(76.56%) of the MLT, 152(66.49%) of the BPT and 3(75%) of the optometry students have not undergone a course or workshop relating to values, ethics or moral background of organ donation which has to noted as institutions can easily arrange for such workshops to improve the attitude and knowledge of their students.

About 388(80.5%) of the MBBS, 246(96.1%) of the MLT, 161(86.64%) of the BPT students didn't give consent to donate organs by signing at the back of driving licence whereas 3(75%) of the optometry students signed for consent to donate organs at the back of driving licence.

Among the study population 374(77.6%) of the MBBS, 233(87.5%) of the MLT, 156(84.57%) of the BPT and none of the optometry students had a family experience of organ donation.

About 438 (47.1%) participants disagree that it is not right to prolong life by organ transplantation whereas 319 participants agree to the same. Almost 50% of the participants agree to donate their organs whereas 11.2% are not willing to donate their own organs, which is highly significant. The rest were undecided

More than 312(33.5%) participants agreed to donate their organs of their children and family whereas 18% of the study population were in disagreement with donating organs of their family members. This is also highly significant in terms of disagreement.

Table 10- Ethics on organ donation before heart stops beating.

	Frequency (n)	Percent (%)
Strongly agree	152	16.3
Agree	221	23.8
Undecided	335	36.0
Disagree	156	16.8
Strongly disagree	66	7.1

About 40.1% of the participants agrees that it's not ethical to remove organs before the heart stops. Ref:

Table 10

Almost 49.3% of the participants disagree that organ donation is troublesome which we consider as a highly significant disagreement for organ donation.

DISCUSSION

The present study entitled “A study of knowledge and attitude about organ donation among medical and paramedical students” conducted in Kanachur Institute of Medical Sciences, Mangalore. It is a questionnaire based cross sectional study started with the objectives to find out and compare the knowledge and attitude regarding organ donation among medical and paramedical students. A significant amount of participants n= 93, 10% are not aware of the term organ donation itself. Most of the participants were aware of why organ donation is done but significant number of the participants (n = 162), 17.2% were not aware of the same. In his study SaleemT et.al.⁴ mentions only 23.3% people had heard about organ donation.

Only n=585, 60.8% participants were able to choose the correct answer of brain death whereas the rest were not able to do so which is not a good sign for people among medical profession. Hamed H et.al.² in his study showed that only 11.7 % of medical students have good knowledge about brain stem death whereas our students performed much better. To the question on which all organs can be donated, n=753,81% of them gave acceptable and correct answers whereas 2.9% gave completely incorrect answers. To check the knowledge of participants in various scenarios seven questions were asked and n=525, 56.5% of them got poor and very poor scores. Only 10% were able to score good scores. We did not find significant difference in gender with respect to knowledge on organ donation. Males and females showed equal performance.

When we checked the overall knowledge of the participants n=242, 60% had poor knowledge, n=594, 63.9% had average knowledge and n=94, 10.1% had good knowledge about organ donation. When we compared education and knowledge related to organ donation we found that 17.2% of MLT students got good scores as compared to MBBS students (9.1%). On the other hand, 49.5% of BPT students displayed poor knowledge. This difference is very highly significant as study participants are all medical/paramedical students and we were expecting a higher scores. Hamed H et.al.² in Egypt showed 36%

having good knowledge on organ donation. We find that our MBBS medical students are having a much lower knowledge compared to the Egyptian study.

When we tabulated the religion vs knowledge in the participants we found that irrespective of the religion the knowledge was of average level and there was no significant difference in the knowledge.

When we tabulated the educational level and knowledge of scenarios we found that 58.2% MLT students got average and above scores as compared MBBS students (41.5%), Optometry (50%) but only 28.7% BPT students got average and above scores. This is a highly significant observation, which needs attention, as we need to improve the knowledge of medical/paramedical students regarding organ donation.

When the attitude of the participants regarding prolonging life by organ donation was asked n=438, 47.1% of them disagreed with the idea whereas only n=319, 34.3% agreed for the same. A less number of participants displays the right attitude in medical spirit.

Almost 50% of the participants agreed to donate their organs, whereas n=104, 11.2% of the participants did not agree to do organ donation. Only 312 participants i.e. 33.5% agreed to donation of organs of their family members and 18% were in complete disagreement for the same. These figures have to be taken note of and addressed in the better view of the community. Hamed H et.al.² showed only 37% of his students had positive attitude towards organ donation our study participants have shown better positive attitude.

When it comes to the ethical issue of removing organ before the heart stops beating 40.1% of the study participants say it as unethical. This may be because of the individual beliefs. Most them- 49.4% however agree that organ donation is not troublesome.

Limitation of the present study:

The present study has done a quantitative analysis of the knowledge and attitude of medical and paramedical students towards organ donation. We have not included practice related questions.

Further recommendation:

There is a need for a qualitative study on the topic to draw further conclusions. A module on organ donation can be added in the curriculum of medical and paramedical students.

CONCLUSION

Organ failure is slowly becoming a major health issue. This can be tackled to some extent by organ transplantation for which organ donation becomes very important. Medical and paramedical people should take up the lead in this regard along with community to spread awareness for the same so that the people in need will be greatly benefited. In our study we found out that the medical and paramedical people who have to take the lead are themselves having less knowledge regarding the same, they too are suffering from ethical dilemma and also are not aware of practices related to organ donation. Its time for us to retrospect and educate our medical and paramedical students regarding organ donation so that they spread a strong message in the community.

Acknowledgments:

Authors like to acknowledge the funding and support given by RGUHS for the study. We also acknowledge the support given by the institute for the study.

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Date of publication: 02 April 2021

Author Declaration: Source of support: Nil , Conflict of interest: Nil

For any images presented appropriate consent has been obtained from the subjects: YES

Plagiarism Checked: YES

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DOI: 10.36848/APAD/2020/13511.51705