



**Research Article**

**A SURVEY OF AWARENESS, PERCEPTION AND ATTITUDE ABOUT WHOLE BODY DONATION AFTER DEATH AMONG MEDICAL, PARAMEDICAL AND NURSING STUDENTS OF HIND INSTITUTE OF MEDICAL SCIENCES, BARABANKI AND SITAPUR, U.P. INDIA**

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**ABSTRACT**

**Introduction:** Anatomy is an important subject for all the medical students. Cadaveric dissection is required in-depth knowledge of human body. Donation of human body in the field of medical science is also needed for learning and research purpose. Besides dissection, cadavers are also used for practicing as well as developing new surgical techniques.

**Aim:** The aim of this study was to determine the awareness, perception and attitude regarding body donation after death among medical, paramedical and nursing students.

**Materials and Methods:** This cross-sectional study was conducted on students of Hind Institute of Medical Sciences, Barabanki and Sitapur, U.P. India among 100 Medical students (Male: Female=59:41), 100 Paramedical students (Male : Female=47:53) and 100 Nursing students (Male: Female=22:78). The duration of study was from April 2018 to June 2018. The sample size of 300 participants were collected by simple random sampling. There were some difficulties facing during data collection. The data were analysed statistically.

**Results:** In our study we found that 46.33% students accepted that the society is not aware about body donation and it was also found that 23.67% candidates were prevented by their family members for body donation.

**Conclusion:** Body donation is an ideal way for teaching in anatomy & medical research. It is helpful for anatomists as well as the future surgeons.

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**INTRODUCTION**

For every medical students Anatomy is an important subject which studied by when they begin their medical career wherein teaching is based on cadaveric dissection<sup>1</sup>. Without the dissection of human body, learning of anatomy is incomplete. For the in-depth knowledge of human body organs, tissue and cells, cadaveric dissection is required<sup>2</sup>. Donation of human body to medical science is also needed for research purpose. People have to be aware of these needs and donate their bodies after death so that future health care professionals can study them and learn<sup>3</sup>. It helps to the surgeons & clinicians for experiment innovative surgical skills and procedures in form of cadaveric labs, workshops thus giving them an opportunity to explore in a realistic manner. Another innovation evolved are the cadaveric banks like brain, kidney, liver, skin & vessels which form a collections for

organ donation which need is required<sup>4</sup> because it supports research on diseases such as cancer, Alzheimer's, dementia, diabetes, Parkinson's etc. It further the development of life saving drugs creations, new surgical implant devices and education of the next generation of health care professionals<sup>5</sup>. Besides dissection, cadavers are also used for practicing as well as developing new surgical techniques<sup>6</sup>. It also provides surgeons a stimulating environment to polish their surgical skills<sup>7</sup>. Neither books nor computers can replace body dissection in learning anatomy<sup>4</sup>.

**MATERIALS AND METHODS**

This cross-sectional study was conducted on students of Hind Institute of Medical Sciences, Barabanki and Sitapur, U.P. India, among 100 Medical students (Male : Female=59:41), 100 Paramedical students (Male : Female=47:53) and 100 Nursing students (Male : Female=22:78). The duration of study was from April 2018 to June 2018. The sample size of 300 participants were collected by simple random sampling. A predesigned questionnaire performa was prepared and

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distributed among the participants. There were some difficulties facing during data collection due to data filled on hostels, canteens and according to convenience time period of participants. The data were analysed statistically.

**OBSERVATIONS AND RESULTS**

Questionnaires were answered by all 300 students from Hind Institute of Medical Sciences, Barabanki and Sitapur, U.P. All students were Indian origin.

**Table 1** Age group table

Serial No.	Age Groups	Categorization of Age groups			Total No. of Respondent	Mean ± SD
Group-1	17-23	Medical	Paramedical	Nursing	248	82.67±7.64
		81	91	76		
Group-2	24-30	13	09	23	45	15±7.21
Group-3	31-37	06	00	01	07	2.33±3.21

From the Table.1 We observed that the total no. of respondent among 17-23 age groups were 248, 45 in 24-30 and 07 in 31-37. The mean ± S.D in group -1, group-2, and group-3 were found to be 82.67±7.64, 15±7.21 & 2.33±3.21 respectively.

On the basis of Socio-Demographic profile of students, 128(42.67%) were male & 172(57.33%) were female. 278(92.67%) students were Hindu, 14(4.67%) were Muslim, 06(2%) students were not interested (to disclose their religion) & 02(0.67%) were of other religion. This study included the students on their educational qualification like 157(52.33%) were U.G, 14(4.67%) were P.G and 129(43%) were Diploma.

**Table 2** Questionnaires for awareness of Body Donation among the students

S.No.	Particulars	Characteristics	No. of students	Percent age
1.	Do you know about body donation?	Yes	246	82.00
		No	54	18.00
2.	Do you know that whole body donation and organ donation are different?	Yes	259	86.33
		No	41	13.67
		News paper or Magazines	50	16.67
		College/school friend or colleague	200	66.67
		51	17.00	
3.	How did you become aware about body donation?	Internet	64	21.33
		Relatives	38	12.67
		TV	42	14.00
		Heard from a doctor	28	9.33
		Radio	35	11.67
4.	Do you feel that the society is aware of body donation?	Seminar/confere nce	16	5.33
		Body donation Camp	33	11.00
		other medium	24	8.00
		Yes	105	35.00
5.	Does your religion allow body donation?	No	139	46.33
		Don't Know	56	18.67
		Not mentioned	48	16.00
		Yes	122	40.67
6.	When can body be donated ?	No	57	19.00
		Don't Know	73	24.33
		During Life	30	10.00
7.	Do you know the significance of body donation?	After Death	187	62.33
		Both	83	27.67
		Yes	208	69.33
8.	Have you donated your body?	No	92	30.67
		Yes	48	16.00
9.	For donation after death, who should give consent?	No	252	84.00
		Family	229	46.33
		Spouse	56	18.67
10.	Do you have a relative whose body have been donated?	Friend	15	5.00
		Yes	45	15.00
		No	255	85.00

**Table 3** Opinion of Willingness of Body Donation in students

S.No.	Particulars	Characteristics	No. of students	Percentage
1.	Are you willing to donate your body after death to medical institute?	Yes	122	40.67
		No	178	59.33
		Organ could be wasted	19	6.33
		I don't want my body cut up or disfigured.	37	12.33
		organ body could be misused abused	41	13.67
2.	If no, reason behind unwillingness regarding body/organ donation.	This is against my religion	20	6.67
		Prevented by family members	71	23.67
		Psychological anxiety	59	19.67
		I don't trust medical system.	32	10.67
		Knowing I am a donor, doctors will be less likely to try to save my life	32	10.67
		I am afraid of seeing that my body won't be respected	32	10.67
		To avoid unnecessary wastage of body by cremation	08	2.67
3.	If yes, reason behind willingness regarding body donation/organ donation	To save other needy people's life	25	8.33
		To facilitate medical teaching	31	10.33
		To save economy by avoiding cremation in poor socioeconomic people	11	3.67
		To avoid environmental pollution.	24	8.00
		All of the above	59	19.67
4.	Would you like to promote your family members for body donation?	Yes	165	55.00
		No	135	45.00
5.	Do you agree to convince other person for body donation?	Yes	199	66.33
		No	101	33.67

**Table 4** Students opinion regarding usefulness of Body Donation for Medical Education and Research

S.No.	Particulars	Characteristics	No. of students	Percentage
1.	According to your opinion, who should bear the expenses of conveyance of donated body to bring it to the medical institution?	Family members	77	25.67
		Government	110	36.67
		By institution	113	37.67
2.	Do you think that dead bodies are not handled properly by medical students?	Yes	91	30.33
		No	107	35.67
		Don't know	102	34.00
3.	Do you know where from the bodies are procured for dissection by medical students?	Unclaimed dead bodies from hospitals	31	10.33
		Body donation	42	14.00
		Both	104	34.67
4.	Do you think that Government should take initiative for awareness to get more no. of donated bodies?	Don't know	123	41.00
		Yes	241	80.33
5.	Do you think that there is a need of educating people about benefits of body donation for improving medical education and research?	No	59	19.67
		Yes	265	88.33
6.	Do you know the donated body is used for the medical education?	No	35	11.67
		Yes	246	82.00
		Don't Know	24	8.00
7.	Do you know the donated body can be used for the research and other purposes?	Yes	30	10.00
		No	268	89.33
		Don't know	20	6.67
8.	Medical professionals should explain, aware and educate the general public about the importance of this gracious act of body donation	Yes	12	4.00
		Yes	260	86.67

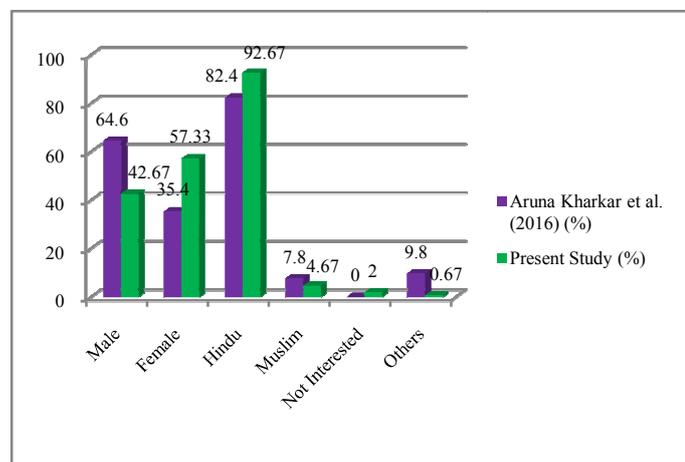
**Table 4** Students opinion regarding usefulness of Body Donation for Medical Education and Research

9.	Teaching anatomy and research in medical science can be done without cadavers?	No	40	13.33
		Yes	72	24.00
		No	176	58.67
		Don't Know	52	17.33
10.	Who should make such decisions about body donation in case of unclaimed dead bodies?	Charitable organization	70	23.33
		Medical college/doctors	135	45.00
11.	Is there any need for having effective laws to govern the process of body donation?	A judge	71	23.67
		No one	24	8.00
12.	Which of the following measures taken by government according to you would be more effective in promoting body donation?	Yes	239	79.67
		No	61	20.33
13.	Do you know what happens to the remains of the body after they are dissected?	Monetary benefit to donor family	41	13.67
		Giving awards	22	7.33
14.	Do medical practitioners or anatomists themselves donate bodies?	Free health treatment for donor family	66	22.00
		All of above	171	57.00
		Yes	124	41.33
		No	176	58.67
		Yes	107	35.67

**DISCUSSION**

**Table 5** Comparison of questionnaires of present study with previous study

S.N	Particulars Questionnaires	Study Conducted				
		Dattatray Digambarrao et al. (2016) <sup>8</sup>		Present Study (2018)		Don't Know
		Yes (%)	No (%)	Yes (%)	No (%)	
1.	Do you know the significance of body donation?	06	94	69.33	30.67	00
2.	Do you know the donated body is used for the medical education?	08	92	82	08	10
3.	Do you know the donated body can be used for the research and other purposes?	07	93	89.33	6.67	04
4.	Medical professionals should explain, aware and educate the general public about the importance of this gracious act of body donation.	47	53	86.67	13.33	24
5.	Teaching anatomy and research in medical science can be done without cadavers?	45	55	24	58.67	17.33



**Graph 1** Comparison of sex & religion of present study with previous study

**Table 6** Comparison of awareness of body donation of present study with previous study

Particulars	Options	Study Conducted	
		Aruna Kharkar et al. (2016) <sup>5</sup> (%)	Present Study (%)
Do you Know about Body Donation ?	Yes	92.2	82
	No	7.8	18
Do You know that whole body donation and organ donation are different?	Yes	80.8	86.33
	No	19.2	13.67
How did you become aware about body donation?	Newspaper/Magazines	37.8	16.67
	College/School	-	66.67
Does your religion allow body donation?	Friend/ Colleague	20.8	17
	Internet	-	21.33
Do you feel that the society is aware of body donation?	Relatives	20.8	12.67
	TV	35.8	14
Does your religion allow body donation?	Heard from a Doctor	4.6	9.33
	Radio	11.8	11.67
Do you feel that the society is aware of body donation?	Seminar/Conferences	7.4	5.33
	Body Donation Camp	-	11
Does your religion allow body donation?	Other medium	17	8
	Yes	36.4	35
Does your religion allow body donation?	No	63.6	46.33
	Don't know	-	18.67
Does your religion allow body donation?	Yes	72.8	40.67
	No	27.2	19
Does your religion allow body donation?	Not mentioned	-	16
	Don't know	-	24.33

**Table 7** Showing willingness of present study with previous study

Questionnaires	Options	Study Conducted	
		Aruna Kharkar et al. (2016) <sup>5</sup> (%)	Present Study (%)
Are you willing to donate your body after death to medical institute?	Yes	55.6	40.67
	No	44.4	59.33
If No, reason behind unwillingness regarding body organ donation.	Organ could be wasted	11.4	6.33
	I don't want my body cut up or disfigured	13.6	12.33
If No, reason behind unwillingness regarding body organ donation.	Organ body could be misused abused	17.2	13.67
	This is against my religion	7.8	6.67
If No, reason behind unwillingness regarding body organ donation.	Prevented by family members	14.2	23.67
	Psychological anxiety	17.8	19.67
If No, reason behind unwillingness regarding body organ donation.	I don't trust medical system. Knowing I am a donor, doctors will be less likely to try to save my life	-	10.67
	I am afraid of seeing that my body won't be respected	-	10.67
If No, reason behind unwillingness regarding body organ donation.	To avoid unnecessary wastage of body by cremation	11.2	2.67
	To save other needy people's life	20.6	8.33
If Yes, reason behind willingness regarding body donation/organ donation	To facilitate medical teaching	6.2	10.33
	To save economy by avoiding cremation in poor socioeconomic people	9.6	3.67
Would you like to promote your family members for body donation?	To avoid environmental pollution.	7.2	8
	All of the above	13.4	19.67
Would you like to promote your family members for body donation?	Yes	42.2	55
	No	57.8	45

**Table 8** Comparison of willingness of participants about body donation from present study with previous studies

Author's Name & Year	Country	Participants	Willingness of Body Donation (%)
Conesa C. <i>et al</i> (2004) <sup>9</sup>	Turkey	General Population	69.9
Bogh I. <i>et al</i> (2005) <sup>10</sup>	China	University students	61.3
Chen JX <i>et al</i> (2006) <sup>11</sup>	Turkey	Medical Students	58.4
Bilgel H. <i>et al</i> (2009) <sup>12</sup>	France	1 <sup>st</sup> MBBS students	81.1
Anubha saha <i>et al</i> (2014) <sup>13</sup>	India	Doctor, Medical & engineering students	67.33
Aruna Kharkar <i>et al.</i> (2016) <sup>5</sup>	India	Engineering students	55.6
Present Study (2018)	India	Medical, paramedical & Nursing students	40.67

**Table 9** Comparison of social opinion of present study with previous study

Questionnaire	Characteristic	Study Conducted	
		Aruna Kharkar <i>et al.</i> (2016) <sup>5</sup> (%)	Present Study (%)
According to your opinion, who should bear the expenses of conveyance of donated body to bring it to the medical institution?	Family members	19	25.67
	Government	37	36.67
	By institution	44	37.67
Do you think that dead bodies are not handled properly by medical students?	Yes	53.2	30.33
	No	46.8	35.67
	Don't know	-	34
Do you know where from the bodies are procured for dissection by medical students?	Unclaimed dead bodies from hospitals	7.4	10.33
	Body donation	8.4	14
	Both	37.6	34.67
Do you think that government should take initiative for awareness to get more number of donated bodies?	Yes	84	80.33
	No	16	19.67
	Don't know	46.6	41
Do you think that there is a need of educating people about benefits of body donation for improving medical education and research?	Yes	88.4	88.33
	No	11.6	11.67

Present study was conducted among medical, paramedical and nursing students for observation of awareness of body donation<sup>14</sup>.

**Significance of body donation:** In our study, we found that 69.33% students were aware regarding body donation, while 24% students have no idea about the teaching of anatomy and research can be done without cadavers.

**Knowledge about body donation:** This cross-sectional study reveals that about 82% student familiar to body donation which is slightly similar from previous studies. About body donation 17% students were aware from their friend/colleague & 11.67% were from radio. Similar results were found by other studies also<sup>5</sup> around 40.67% students gave their opinion that their religion allow for body donation.

**On the willingness of body donation:** 59.33% students not ready to donate their body will full because prohibition, by their family members and also psychological anxiety. Similar study done in Turkey on medical students and they found that 58.4% students have willingness of body donation<sup>11</sup>.

On the opinion of expense bearing around 37.67% students gave their opinion that the expense should be bear by the institution. 88.33% students thought that there is a need of educating people about benefits of body donation for improving medical education and research which was similar to other studies<sup>5</sup>.

## CONCLUSION

Body donation is an ideal way for teaching in anatomy & medical research. It also helpful for future surgeons. In spite of this, there should be family counselling needed to inspire their members to donate the body in spite of prohibiting.

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