

Knowledge, Attitude And Perceptions About Body Donation - A Cross Sectional Study In India

Pragya Maheshwari¹, Tanuj Kanchan², Bukkambudhi V. Murlimanju³, Mangala M. Pai³, Latha V. Prabhu³, Vidushi Sharma¹

¹M.B.B.S. Graduate, Kasturba Medical College, Mangalore, Manipal Academy of Higher Education, Manipal, Karnataka, India

²Department of Forensic Medicine and Toxicology, All India Institute of Medical Sciences, Jodhpur, Rajasthan, India

³Department of Anatomy, Kasturba Medical College, Mangalore, Manipal Academy of Higher Education, Manipal, Karnataka, India

Disclose and conflicts of interest: none to be declared by all authors

ABSTRACT

Introduction: the objective of the present study was to assess the knowledge, attitude and perceptions about body donation in India.

Material and Methods: the present cross sectional study was done among students and faculty in a medical school in India. A semi structured questionnaire was used to collect the relevant information from 300 individuals. The questionnaire was based on the basics of legal provisions and act governing the body donation and common myths and opinion of the people regarding it.

Results: the present study observed that, majority of the participants were reasonably well aware about the rules and regulations about body donation. Most participants were aware about the use of donated bodies in anatomical dissection and teaching and use by surgeons to try new surgical skills. Nearly 40% participants said that the family cannot donate the body of the deceased irrespective of his wish to donate body after death. However nearly 32% said that the family can donate the deceased individual's body irrespective of his/her wishes.

Conclusion: in our study, the participants were largely aware about the procedure for registering oneself as body donor, but the willingness to donate was low. Despite the fact that donated bodies are the preferred source for cadavers, the proportion of people in the general population registering for body donation remains very small.

Keywords: Anatomy; Body Donation; Cadaver; Dissection.

Introduction

The study of anatomy involves dissection of the human body and understanding the placement of internal organs and structures. This forms the backbone of the learning of clinical subjects and especially surgery wherein, without sound knowledge of exact composition and arrangement of body structures, treatment cannot be imparted. Whatever advancement in technology and its aid in medical education and research, the computers and simulation tools can never really replace the feeling of working on a body in reality. Same is the case with working on a new surgical technique by the surgeons which might need some amount of practice and expertise before it can be used on the patient.¹ This suggests that there is a need for dead bodies to teach the medical students.

In order to deal with shortage of doctors in India, a large number of medical colleges have opened up. With the bodies being donated for this purpose being very low, these colleges face a severe shortage of cadavers for teaching purpose. This results in a large number of students working on a single cadaver. Body donation is nothing but voluntary giving of one's whole body for the purpose of medical research and education².

The bodies currently being used for this purpose, are unclaimed bodies which are obtained by the police. The problem in working with such cadavers is that, the cause of death and morbid state of the deceased will not be known. There might be a considerable risk of transmission of infection to the health personnel. The bodies obtained from the police are only a handful and are often not in a very usable state. Unless the practice of organ donation which is very much publicized by means of awareness campaigns and a lot of awareness has been generated about it through the use of mass media among the general population, body donation as concept in itself is very much unheard of among the masses. There appears to be a gap in the transmission of knowledge from medical professionals to the general population regarding awareness about whole body donation. In addition, factors like religious beliefs compounded by ignorance about the use and handling of the donated bodies may act as a deterrent factor for those who might even have some idea about the body donation program³. Body donation is locally governed by 'The Karnataka Anatomy Act, 1957'⁴. The present study aims to assess the knowledge about the laws regarding body donation, and their attitude and perceptions towards body donation. The objectives

were to make a comparative analysis of knowledge, perceptions and attitude between the study groups.

Material and Methods

The present cross sectional study was performed among the students and faculty of a medical school in India. The present study included 300 study participants. Among them, 200 were students (66.7%) and 100 were faculty members (33.3%). Males were 145 in number (48.3%) and 155 were females (51.7%). The participants were also divided into, age groups less than 25 years and more than 25 years. In this, 196 participants (65.3%) were less than 25 years and 104 (34.7%) were more than 25 years of age. A majority of participants in the present study were Hindu in religion (n=242, 80.7%). The other participants were following Christianity (n=15, 5%), Islam (n=15, 5%) and others (n=28, 9.3%). The present study was approved by our 'Institutional Ethics Committee'. A semi structured questionnaire was used to collect the relevant information. The questionnaire was based on the basics of legal provisions and act governing body donation and common myths and opinion of the people regarding it. The first part of the questionnaire seeks the personal information like age, gender, religion and profession. This was followed by specific questions regarding knowledge, attitude and perceptions of the study participants towards body donation.

Section A comprised of questions regarding the basic knowledge about body donation and rules and regulations governing the same. Section B comprised of questions to assess the attitude of the study participants towards body donation. Section C contained questions about the perception of participants about body donation. The students and faculty of the colleges were approached after obtaining requisite permission from the Head of the Institution. The participants were briefed on the objectives of the study and a written informed consent was obtained from those willing to participate in the study, following which the questionnaires were given out. No identifying information was collected from the participants.

The following questions were asked:

Knowledge

K1 - do you think, the donated bodies are of use in anatomical dissection and teaching?

K2 - do you think, the donated bodies will aid surgeons in trying out new surgical skills?

K3 - do you think, the consent for the body donation, solely and individual's decision?

K4 - do you think, the family need to be intimated about ones decision to donate his/her body after death?

K5 - do you think, the consent for body donation, can be given in oral?

K6 - do you think, the bodies of only registered

donors are taken up for the process of donation?

K7 - do you think, the family of the deceased can donate his/her body irrespective of the wish of the deceased?

K8 - do you think, the family can refuse to hand over the body of the deceased, who is a registered body donor?

K9 - do you think, the institution can refuse to accept the body of a registered donor?

K10 - do you think, the body of a person dying of AIDS, hepatitis B, tuberculosis or any other infectious disease can be donated?

K11 - do you think, the eye donation can be taken up, from a body registered for donation??

K12 - do you think that the organs of a body can be donated with the consent of relatives of a body, which is registered for donation?

K13 - do you think, the body can be donated after the post mortem examination?

K14 - do you think, there are well defined rules and regulations, which govern the process of body donation?

K15 - do you think, the unclaimed bodies can be donated by the hospital to a medical college with the administrative approval after a prescribed period?

Attitude

A1 - are you registered as a body donor?

A2 - are you willing to donate your body?

A3 - will you encourage your family and friends to donate their body for teaching and research purpose?

A4 - what is the reason for willingness to donate your body?

A5 - what is the reason for unwillingness to donate your body?

Perception

P1 - do you think, incentives should be provided, to those who are registered as body donors??

P2 - if the answer is yes, the incentives can be in the form of?

P3 - if the answer is no, why do you think that the incentives should not be given?

P4 - do you think, there is a need for awareness campaigns to popularize body donation?

P5 - do you think, the mannequins are better/good substitute to cadavers in medical education?

Analysis of data

After the collection of participants responses for the questionnaire, the information was entered in an excel sheet for the analysis and the results were expressed in proportions.

Results

The overall responses of the study participants of the present study about the knowledge, attitude and perception about the body donation are represented in table 1.

Table 1. Knowledge, attitude and perception about the body donation in the present study (n=300)

	Yes	No	Not sure
K1	286 (95.3%)	3 (1%)	11 (3.7%)
K2	217 (72.3%)	30 (10%)	53 (17.7%)
K3	223 (74.3%)	55 (18.3%)	22 (7.4%)
K4	244 (81.3%)	30 (10%)	26 (8.7%)
K5	39 (13%)	204 (68%)	57 (19%)
K6	143 (47.7%)	108 (36%)	49 (16.3%)
K7	97 (32.3%)	119 (39.7%)	84 (28%)
K8	122 (40.7%)	97 (32.3%)	81 (27%)
K9	130 (43.4%)	85 (28.3%)	85 (28.3%)
K10	67 (22.3%)	162 (54%)	71 (23.7%)
K11	234 (78%)	22 (7.3%)	44 (14.7%)
K12	201 (67%)	42 (14%)	57 (19%)
K13	124 (41.3%)	105 (35%)	71 (23.7%)
K14	217 (72.3%)	27 (9%)	56 (18.7%)
K15	255 (85%)	14 (4.7%)	31 (10.3%)
A1	1 (0.3%)	299 (99.7%)	0 (0%)
A2	111 (37%)	95 (31.7%)	94 (31.3%)
A3	121 (40.3%)	75 (25%)	104 (34.7%)
P1	163 (54.3%)	88 (29.3%)	49 (16.4%)
P4	247 (82.3%)	25 (8.3%)	28 (9.4%)
P5	49 (16.3%)	196 (65.4%)	55 (18.3%)

The present study observed that, more than 70% of the participants were aware about the existence of well-defined rules and regulations governing the process of body donation. Most participants were aware about the use of donated bodies in anatomical dissection and teaching and use by surgeons to try

new surgical skills. Most participants were aware that consent for donating your body is entirely an individual's decision, which cannot be given in oral and that the family need to be informed about one's decision to donate body after death. Nearly 50% participants said that only bodies of registered donors can be taken up for donation. This was closely followed by nearly 40% participants, who said that there are other sources of bodies other than the voluntary registered body donors. Nearly 40% participants said that the family cannot donate the body of the deceased irrespective of his wish to donate body after death. However nearly 32% said that the family can donate the deceased individual's body irrespective of his/her wishes. Majority participants were of the opinion that the family can refuse to hand over the body of the deceased despite the registration. They also said that the institution for which the person has registered for donating one's body can refuse to accept the body if the situation advises. Over 75% participants opined that, eyes of a body registered for donation can be taken up for eye donation if the individual has consented for the same. However, nearly 70% participants said that organs of a body, registered for body donation can be taken up if the relatives of the deceased consent for the same. Nearly 40% of the participants also said that a body can be taken up for donation after the postmortem examination. Nearly 85% participants knew that unclaimed bodies in a hospital can be donated after administrative approval and after a prescribed time duration.

The participants were asked if they are willing to donate their own body, the response to which was mixed. Nearly 37% participants were willing (Fig. 1) to donate their body and nearly 31% said that they are not willing (Fig. 2) to donate their body and an equal number was not sure if they would want to donate their body.

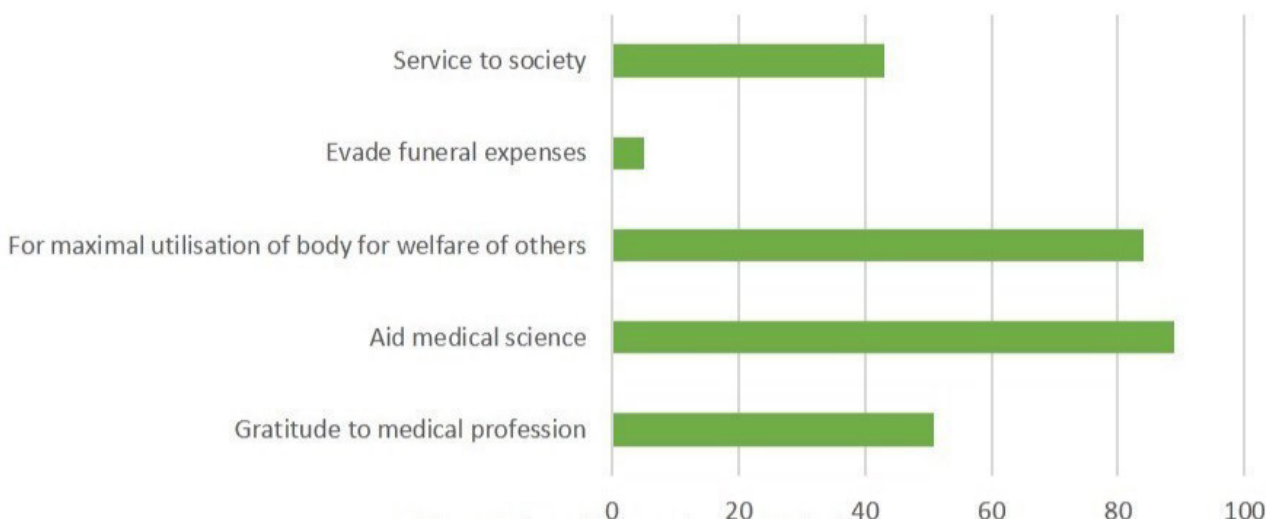


Figure 1. Frequency of reasons for willingness to donate body among study participants (n=111)

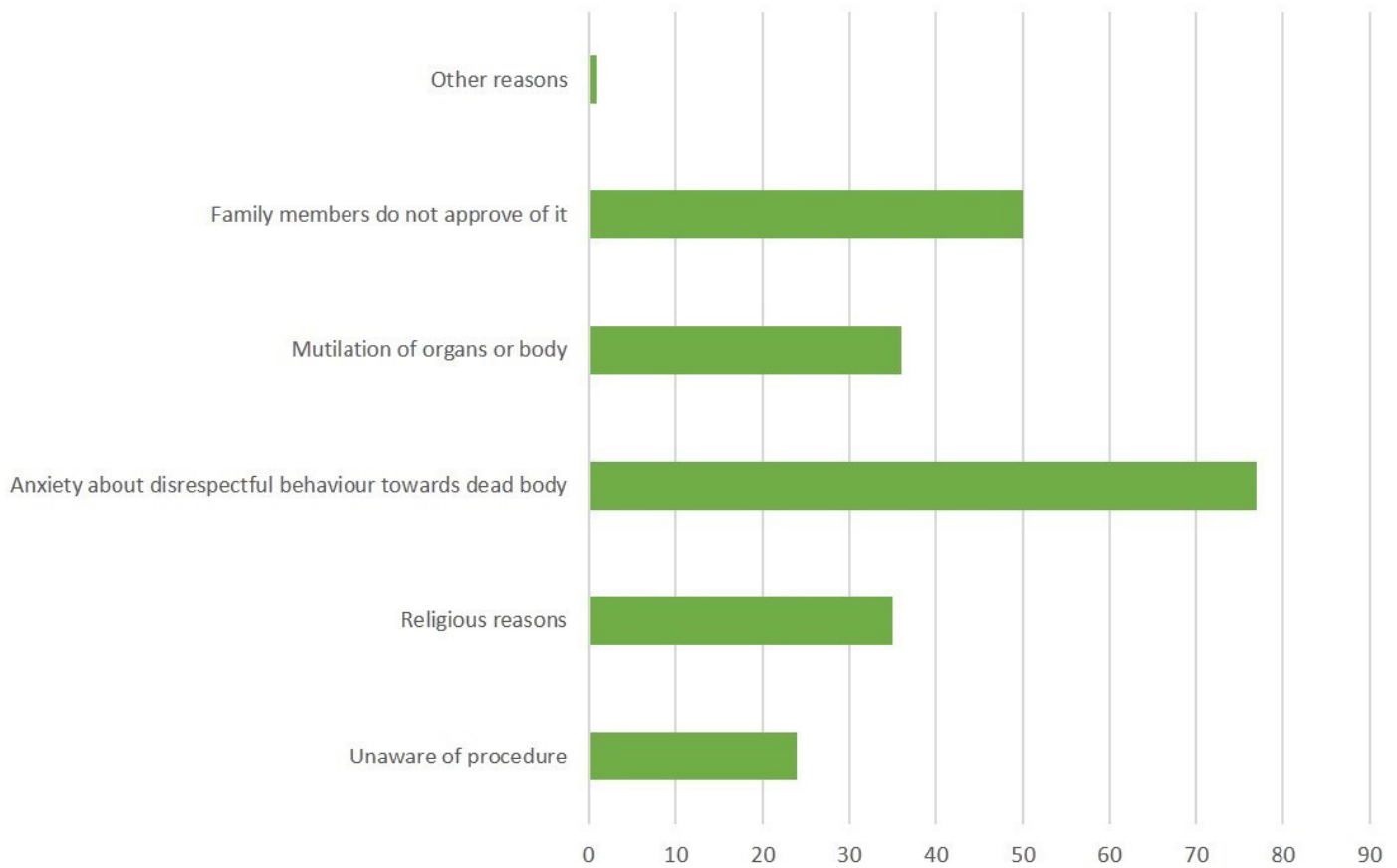


Figure 2. Frequency of reasons for unwillingness to donate body among study participants (n=95)

Nearly 40% said they would encourage their family and friends to donate their body, while nearly 35% were not sure if they would do so. Over 50% participants were of the opinion that incentives should be provided for those who are registered as body donors. Over 80% believed that there was a need to popularize the concept of body donation. Over 60% participants denied that mannequins are a better or a good substitute for donated bodies for medical teaching. Maximal utilization of the body for welfare of others and aid medical science were the most commonly cited reasons for the participants willingness to donate their body. While the anxiety about disrespectful behavior to the dead body and the family’s disapproval for the same were the major deterrents for participants to donate their body.

People who were in favour of giving some form of incentives to registered donors, mostly said that the incentives should be in the form of both monetary benefits as well as the registered donors must be entitled to discounted health services. The reason cited by those who were against giving any form of incentives for registering oneself as a body donor was that donation is an act of charity and that the incentives might be misused.

Participants in both age categories were aware about the use of donated bodies in anatomical dissection and teaching and aiding the surgeons in trying out

new surgical skills. Nearly 75% participants in both age categories were aware that the decision to donate one’s body is solely and individual’s decision. While majority people in both groups said that family need to be intimated about one’s decision to donate body after death, the proportion was higher for participants aged greater than 25 years. Majority people in both age groups were aware that the consent for body donation cannot be taken in oral, the proportion of people being aware of this was higher among those aged greater than 25 years. Nearly 50% participants in both age groups agreed that bodies of only registered individuals can be taken up for body donation. Majority participants in both age groups were aware that the family cannot donate the deceased’s body irrespective of his wishes but the proportion for the same was found to be higher among those aged greater than 25 years. While a majority participants aged less than 25 years said that the family of a registered donor can refuse to hand over the body after death, 50% of those aged greater than 25 were aware that the family can refuse. Nearly 40% of those aged less than 25 years were aware that the recipient institution can refuse to accept the body of a registered donor if the situation arises so, majority (40%) of those aged greater than 25 were unsure about the same. Majority participants in both age groups were aware that bodies of those dying with AIDS, Hepatitis, tuberculosis or other infectious diseases cannot be

donated, the proportion being higher in those aged less than 25 years. Majority of participants in both age groups said that eye donation can be taken up in a body registered for donation if the consent for the same is obtained, the proportion being marginally higher in those aged less than 25 years. Majority participants in both ages groups said that organs of a body registered for donation can be donated if the relatives consent for it the proportion being marginally higher in those less than 25 years. While a majority of those under 25 years were aware that body cannot be donated after post mortem examination, nearly 50% of those aged more than 25 years said that body can be donated after post mortem examination. Majority participants in both groups were affirmative about the existence of well-defined rules and regulations regulating the process of body donation, the proportion was higher in those ages less than 25 years. Majority participants in both age groups were aware that unclaimed bodies in hospitals can be taken up for donation, the proportion for the same was higher in those aged greater than 25 years.

Only 1 participant aged less than 25 years was a registered body donor while no participant over 25 years was a registered body donor. Among those aged less than 25 years, majority (nearly 44%) were willing to donate their body while in those more than 25 years majority (nearly 40%) were unsure about the same. Similarly, nearly 45% of those aged less than 25 years were willing to encourage their family and friends to donate their body while only 32% of those more than 25 years were willing to do so.

While over 60% of those aged less than 25 years opined that incentives must be given to registered donors, over 40% of those over 25 years disagreed for any incentive. Majority and nearly equal participants in both age groups felt that the concept of body donation needs to be popularized as has been done for the organ donation program. Majority and nearly equal participants of both age groups disagreed that mannequins can act as a substitute for donated bodies for medical education and teaching. For both age groups, maximal utilization of body for welfare of others and aiding medical science were the chief reasons of their willingness to donate their body. Reasons for unwillingness to donate body among those less than 25 years was anxiety about disrespectful behavior towards dead body. For those aged more than 25 years, this along with disapproval of family members were major reasons for unwillingness. Both age groups considered incentives for registered donors to be in the form of both monetary benefits as well as discounted health services. Also, for those reusing any incentives, the major reason for both age groups was that donation is an act of charity and that the incentives might be misused. Participants in both categories were aware about the use of donated bodies in anatomical dissection and teaching and aiding the surgeons in

trying out new surgical skills. Nearly 75% participants in both categories were aware that the decision to donate one's body is solely and individual's decision. While majority people in both groups said that family need to be intimated about one's decision to donate body after death, the proportion was higher in females. Majority people of both sexes were aware that the consent for body donation cannot be taken in oral, the proportion of people being aware of this was higher among males. Over 45% participants in both groups agreed that bodies of only registered individuals can be taken up for body donation. Majority participants in both age groups were aware that the family cannot donate the deceased's body irrespective of his wishes but the proportion for the same was found to be marginally higher among females. While a majority participant of both sexes said that the family of a registered donor can refuse to hand over the body after death, the proportion for the same was marginally higher among females. Nearly 37% of both sexes were aware that the recipient institution can refuse to accept the body of a registered donor if the situation arises so. Majority participants in both groups were aware that bodies of those dying with AIDS, Hepatitis, tuberculosis or other infectious diseases cannot be donated, the proportion being higher in females. Majority of participants in both groups said that eye donation can be taken up in a body registered for donation if the consent for the same is obtained, the proportion being higher in females. Majority participants in both groups said that organs of a body registered for donation can be donated if the relatives consent for it the proportion being marginally higher in females. While a majority of males (nearly 50%) were unaware that body cannot be donated after post mortem examination, nearly 40% of females said that body can be donated after post mortem examination. Majority participants in both groups were affirmative about the existence of well-defined rules and regulations regulating the process of body donation, the proportion was higher in females. Majority participants in both groups were aware that unclaimed bodies in hospitals can be taken up for donation, the proportion for the same was marginally higher in males.

Only 1 participant, male, was a registered body donor while no female participant was a registered body donor. Among males, majority (nearly 42%) were not willing to donate their body as opposed to nearly 48% females who were willing to donate their body. Similarly, nearly 45% of females were willing to encourage their family and friends to donate their body while only 35% of males were willing to do so. Over 50% of both sexes opined that incentives must be given to registered donors. Majority and nearly equal participants in both groups felt that the concept of body donation needs to be popularized as has been done for the organ donation program. Majority and nearly equal participants of both groups disagreed

that mannequins can act as a substitute for donated bodies for medical education and teaching. Both sexes cited aiding medical science as a major reason for their willingness to donate body while anxiety about disrespectful behavior towards the dead body was the most important reason for their unwillingness for the same. Both groups considered incentives for registered donors to be in the form of both monetary benefits as well as discounted health services. Also, for those reusing any incentives, the major reason for both groups was that donation is an act of charity and that the incentives might be misused.

Participants among both faculty and students were aware about the use of donated bodies in anatomical dissection and teaching and aiding the surgeons in trying out new surgical skills. Over 70% participants in both categories were aware that the decision to donate one's body is solely and individual's decision. While majority people in both groups said that family need to be intimated about one's decision to donate body after death, the proportion was higher in faculty than students. Majority people of both sexes were aware that the consent for body donation cannot be taken in oral, the proportion of people being aware of this was higher among faculty. Over 45% participants in both groups agreed that bodies of only registered individuals can be taken up for body donation. Majority participants in both age groups were aware that the family cannot donate the deceased's body irrespective of his wishes, the proportion for the same was found to be marginally higher among faculty. While over 50% of faculty were aware that the family of the deceased can refuse to hand over the body, only 34% of the students were aware of this and a majority of students said that the family cannot refuse. Majority of the faculty were unsure if the institution can refuse to accept the body of a registered donor. A majority of students, however, were aware that the institution can refuse the body. Participants in both the groups were aware that the body of a person dying of an infectious disease cannot be donated, the proportion for the same was higher among students. Majority of participants in both groups said that eye donation can be taken up in a body registered for donation if the consent for the same is obtained, the proportion being higher in students. Majority participants in both groups said that organs of a body registered for donation can be donated if the relatives consent for it the proportion being marginally higher in students. While a majority of faculty (over 50%) were unaware that body cannot be donated after post mortem examination, nearly 40% of students were aware that the body cannot be donated after post mortem examination. Majority participants in both groups were affirmative about the existence of well-defined rules and regulations regulating the process of body donation, the proportion was higher in students. Majority participants in both groups were aware that unclaimed bodies in hospitals can be taken

up for donation, the proportion for the same was higher among faculty.

Among faculty, majority (nearly 42%) were not sure if they were willing to donate their body as opposed to nearly 44% students who were willing to donate their body. Similarly, nearly 40% of faculty were unsure if they would encourage their family and friends to donate their body while majority (nearly 45%) of students were willing to do so. While over 40% of faculty were opposed to giving incentives for registering as body donor, over 60% students said that incentives must be given. Majority and nearly equal participants in both groups felt that the concept of body donation needs to be popularized as has been done for the organ donation program. Majority and nearly equal participants of both groups disagreed that mannequins can act as a substitute for donated bodies for medical education and teaching. While aiding medical science was the most important reason among the students for their willingness to donate their body, maximal utilization of the body for welfare of others was the most important reason for the willingness for the faculty. Anxiety about disrespectful behavior towards the body was the most important reason for unwillingness to donate body, the faculty said disapproval of the family for the same was an important reason. Both groups considered incentives for registered donors to be in the form of both monetary benefits as well as discounted health services. Also, for those reusing any incentives, the major reason for both groups was that donation is an act of charity and that the incentives might be misused.

Discussion

According to a descriptive study conducted to assess the attitudes of young adults from UK towards organ donation and transplantation, an opportunity sample of 119 participants administered with an attitude questionnaire. A large majority of participants were familiar with the term organ donation, organ transplantation and proposed opt-out system for donation. The results of the study shown that, majority of the participants (90%) were in favor of donation, though fewer had signed up to the organ donation register. The study concluded that, increasing the awareness of people regarding organ donation through education could bring a positive impact on organ donation rate⁵. In the recent years, Netherland has witnessed a steep increase in the number of bodies donated for medical research and training. A Survey conducted to explore this upward trend and motives for donation in 2008 revealed that the principal factors for body donation were under three dimensions, they were a desire to be useful after death, negative attitude towards funerals and expression of gratitude. It concluded that many donors have a supportive social network and meaningful social relationship⁶. A population based study regarding whole body donation

for medical science was conducted in USA, using telephonic survey method, 385 members participated in the study. The factors affecting the willingness to donate body has been studied by researchers elsewhere. It has been observed that people from young age are more willing to donate their body for medical education than the older population^{7,8}.

In our study a similar situation was found wherein those aged less than 25 years were found to be more willing to donate the body than those over 25 years of age. Likewise, gender has significant association with willingness to donate one's body. Males are found to be more willing to donate one's body^{8,9}. The same was found in our study with males more willing to donate body for medical education than females. Similar reasons were found in our study with majority of the participants citing these reasons for the willingness to donate the body. Despite the fact that donated bodies are the preferred source for cadavers, the proportion

of people in the general population registering for body donation remains very small. In our study, only one participant was found to be a registered body donor. The most important reason cited by the study participants for unwillingness to donate body was the anxiety about disrespectful behavior towards the body. In older individuals, disapproval of the family for donating the body was also a major reason. Similar reasons were found by other researchers elsewhere⁸.

The overall knowledge of the study participants in our study regarding body donation was found to be adequate. The participants were aware about the various requisites and conditions for donating body and registering oneself as body donor. However, despite of this, the willingness to donate was low.

Acknowledgements

The authors sincerely thank the participants of this study who offered their valuable opinion.

References

1. Rokade SA, Bahetee BH. Body donation in India: a review. *Int J Res Med Sci.* 2013;1: 173-7.
2. Amanrao BP, Prakash KD, Bhagwan KK, Kushal S, Balkrishna CV. Whole body donation - an attitude and perception in North Maharashtra. *Int J Health Sci Res.* 2012;2:15-20.
3. Saha A, Sarkar A, Mandal S. Body donation after death: the mental setup of educated people. *J Clin Diagn Res.* 2015;9:AC05-9.
4. The Karnataka Anatomy Act. 1957; Available at: <https://indiacode.nic.in/> (Accessed on 07-11-2021).
5. Coad L, Carter N, Ling J. Attitudes of young adults from the UK towards organ donation and transplantation. *Transplant Res.* 2013;2:9.
6. Bolt S, Venbrux E, Eisinga R, Kuks JBM, Veening JG, Gerrits PO. Motivation for body donation to science: more than an altruistic act. *Ann Anat.* 2010;192:70-4.
7. Armstrong GT. Age: an indicator of willingness to donate? *J Transpl Coord.* 1996;6:171-3.
8. Bolt S, Gerrits PO. Personality and motivation for body donation. *Ann Anat.* 2011;193: 112-7.
9. Dluzen DE, Brammer CM, Bernard JC, Keyser ML. Survey of cadaveric donors to a body donation program: 1978-1993. *Clin Anat.* 1996;9:183-92.

Received: November 27, 2021

Accepted: December 07, 2021

Corresponding author

B.V. Murlimanju

E-mail: flutemist@gmail.com