

Original Research Article

Exposure to dissection-A factor influencing the choice of voluntary body donation

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Abstract: This paper highlights the significance of cadaver dissection as an essential part of medical education and emphasizes the shortage of cadavers in medical colleges. The study aimed to evaluate the knowledge and attitude of medical students towards body donation. The results indicate that a majority of students are willing to donate organs but not their whole body due to concerns about disrespectful behavior in the dissection hall. Moreover, some students were not aware of the legal procedures involved in body donation. The study found no significant difference in opinion based on gender or religion. The findings of this study may be useful in promoting body donation and addressing the shortage of cadavers in medical colleges.

Keywords: Cadaver dissection; Medical education; Body donation; Attitude; Shortage.

1. Introduction

Body donation is the act of donating one's whole body after death for medical education and research purposes. Although there have been many developments in audio-visual aids and 3D virtual anatomy dissection, cadaver dissection remains a crucial component of medical education. While unclaimed bodies were previously used for dissection purposes, most institutions now rely on donated bodies. However, the sudden increase in the number of medical colleges in India and the growing number of students in each college have resulted in a shortage of cadavers.

In Japan, it is common practice to hand over the ashes of the dissected cadavers of donated bodies to their relatives, which has changed the mentality of the Japanese towards body donation for medical education or cadaver organ transplant [1]. However, the lack of bodies for dissection in India, despite being the second-most populated country, remains a significant challenge. Dissection of human cadavers was started by Sushruta in India around 500 BC, according to ancient history. Nonetheless, there may be a gap between medical professionals and the general public in conveying awareness of body donation as a novel program. Cultural and religious backgrounds, as well as a lack of awareness, are among the reasons hindering common people from considering body donation.

To encourage the public to donate their bodies, we must first develop a positive attitude towards body donation among medical professionals [2]. However, a few studies have shown that exposure to dissection of medical students significantly decreases their willingness towards body donation [3].

Therefore, this study aims to evaluate the knowledge and attitude of medical students towards body donation after death. By studying and evaluating the awareness of medical students regarding body donation after death, we hope to promote body donation and address the shortage of cadavers in medical colleges.

2. Material and Methods

This study was designed as a cross-sectional study conducted at the Chamarajanagar District Institute of Medical Education and Research (CDSIMER), Harohalli, Karnataka. The study population consisted of 2nd and 3rd-year MBBS students at CDSIMER, with a total population of 300 students. The inclusion criteria for the study were all 2nd and 3rd-year MBBS students present on the day of the evaluation, while the exclusion criteria were students who were not willing to participate.

A questionnaire was prepared for the study, which included questions related to demographic features, knowledge of body donation, attitudes towards body donation, and causes of unwillingness towards body donation. The questionnaire was distributed to all 300 medical students, and 180 completed questionnaires were returned. Participation in the study was voluntary, and anonymity was maintained throughout the study.

Up to two attempts were made to collect the completed questionnaires. The data collected were analyzed using descriptive statistics, and the results were expressed as a percentage of the total study population. SPSS statistical software was used for data analysis.

Ethical considerations were followed throughout the study, and written informed consent was obtained from all participants. The study was approved by the Institutional Ethics Committee of CDSIMER.

3. Questionnaire

The participants were asked to fill out a questionnaire consisting of the following items:

1. Sex: Male/Female
2. Religion:
3. Awareness of the term voluntary body donation: Yes/No
4. What is body donation? (multiple choice)
 - a Can only be used for dissection by medical students
 - b Can only be used for organ transplant
 - c Both
 - d No idea
5. Awareness of body donation association in the institute: Yes/No
6. Knowledge of legal aspects of body donation: Yes/No
7. Willingness to donate body after death: Yes/No
8. Willingness to donate organs after death: Yes/No
9. Probable reason for not donating: (multiple choice)
 - a Not aware
 - b Unacceptability of donation by family
 - c Anxiety of disrespectful behavior towards cadaver/Fear of mutilation
 - d Religious beliefs
 - e Others - please specify
10. Comfort with family member donating their body: Yes/No
11. Willingness to be a part of body donation awareness program: Yes/No
12. If no, willingness to do it in future: Yes/No
13. Awareness of body donation before joining the medical course: Yes/No
14. For those who are willing to donate their body: Motivation (multiple choice)
 - a Medical person/ doctor
 - b Media
 - c Family members
 - d Voluntary organizations
 - e Others - please specify
15. For those who are not willing to donate their body: Impact of exposure to dissection for one year on decision: Yes/No

4. Results

The study analyzed 180 completed questionnaires, comprising 70 male and 110 female participants. The majority of participants identified as Hindu (118), followed by Muslim (52) and Christian (10). All participants were 2nd and 3rd year MBBS undergraduates who had undergone one year of dissection exposure during their 1st year of the course.

Of the participants, 40% (72) were unaware of the body donation association in their institute, and 43% (78) had no knowledge about the legal aspects of body donation. While 80% (145) of students were interested in donating their organs, only 36% (64) expressed willingness to donate their whole body for dissection and research purposes (Table 1).

A pie chart representing the different reasons for unwillingness towards body donation is presented in Figure 1. Despite this, 90% (162) of the students expressed a willingness to participate in awareness programs. No statistically significant differences in opinion were found based on gender or religion.

Table 1. Showing answers for different questions

SN	Question	Yes (%)	No (%)	Not answered
1	Are you aware of the term voluntary body donation?	95%	5%	—
2	Are you aware of body donation association in your institute?	38%	40%	22%
3	Do you know about the legal aspects of body donation?	57%	43%	—
4	Are you willing to donate your body after death?	36%	97%	3%
5	Are you willing to donate your organs after death?	80%	18.4%	1%
6	Are you comfortable with your family member donating their body?	78%	11.3%	12%
7	Are you willing to be a part of body donation awareness program?	90%	—	10%

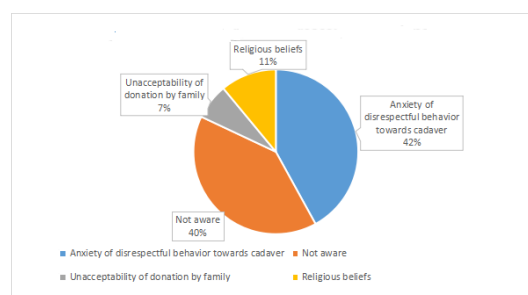


Figure 1. Showing most probable reason for not donating

Table 2. Showing comparison with different studies

Year	Study population	Country	Willing to donate whole body	Not willing to donate whole body
2004	Anatomists	South eastern Spain (11)	68.0%	28.9%
2006	University students	Denmark(12)	61.3%	08.5%
2015	Medical students	India(2)	5.66%	54%
2016	Nairobi, Kenya	Medical students(9)	67%	21.2%
2019	Medical doctors	India(3)	23.5%	18.6%
2023	Medical students	India (present study)	36%	58%

5. Discussion

In 1948, the Anatomy Act was passed in all of India's states [1]. This allows bodies to be donated by the donor and bodies to be claimed for medical and research use if there is no claim to one's body within a 48-hour timeframe. Similar to the US, India also has specific guidelines for accepting bodies for donations. Donations that are not deemed suitable include bodies with HIV / AIDS, hepatitis (A, B, and C). But it totally depends on the institutional policy which can differ from one institution to another.

India first experienced body donation in the year 1956, when the body of Pandurang Sridhar Apte was donated to B. J. Medical College Pune. Although many known personalities have donated their bodies for medical education in the past, still it's not easy to persuade people to body donation because of various barriers. A previous study on doctors showed that doctors are more comfortable donating only organs rather than the whole body, i.e. 26.1% (males), 23.5% (females) [4]. Previous studies have reported that MBBS students expressed a very high (85-88%) response for cadaveric organ donation or translation in Hong Kong and Italy, respectively [5,6]. In Denmark, 74% of the general population have expressed their willingness towards organ donation [7]. Turkey has found a 49.5% positive response among University students [8].

In the present study, even though 80% (145 students) were willing to donate their organs, only a small number of 36% (64 students) were willing for whole body donation. A study by Saha *et al.*, showed that attitude regarding cadaveric organ donation is good, willingness to donate the body for teaching purposes is very poor. Only 5.66% respondents are willing to donate their body for dissection purposes and 18.66% for

both purposes [3]. Unwillingness to enroll in the body donation program by medical students and medical professionals seen in our study has also been reported in other studies. A study on first-year Irish Medical students reported decreased support for body donation by the students from 31.5% before dissection to 19.6% after dissecting for 9 weeks [9] (Table 2).

In the present study, the most common reason (42%) for not willing to donate the whole body is the fear of mutilation and anxiety about disrespectful behavior towards the cadaver following exposure to dissection for one year. Around 78% of them were not comfortable with their family members donating their body and also not comfortable with their family member's body on the dissection table. To overcome this, we have to conduct special programs in the dissection hall that emphasize respecting the cadavers on the dissection table and maintaining a strict decorum by students and attenders who handle the cadavers.

Previous studies among medical professionals have also shown that only 22% of physicians are willing to donate their bodies for medical education, and 85% believed that donated bodies were misused [10]. The next common reason for not donating is not being aware of the legal aspects of donation and the existence of such a body in their institution. The small proportion of students who are aware of a local body donation program is an indicator that there is a lack of general information about the program. This could be due to a lack of active campaigns about the importance of body donation for anatomy teaching [11]. We may not have focused on stressing the importance of body donation for dissection purposes. This lack of information on body donation programs has become a hurdle for potential donors.

A small number of students who had a positive attitude towards body donation cited their main motivation as coming from a medical person or a doctor, followed by the media.

A small group of students had religious beliefs that did not allow them to donate their body, and a few groups of students believed that their family members may not be happy with the decision to donate their body to science as it would not give closure to their relatives. They believed this act to be discourteous.

To increase the number of donations, a multidisciplinary approach is needed, which includes various awareness programs among medical students, following a practice of maintaining the honor and pride of the donated cadaver by cadaveric oath-taking ceremonies and other initiatives. These will not only help the students in respecting the cadaver and treating them properly but also spread awareness among the general public.

6. Conclusion

Encouraging the public towards body donation requires developing a positive attitude towards it among medical students, who can then educate the general public. To achieve this, a body donation program should be designed, and body donation cells should be made mandatory in all medical colleges. Awareness campaigns should be launched using social media and celebrities. During orientation programs for 1st-year medical students, they should be taught the importance of respecting cadavers and treating them properly. Donors and their families may be given social honor, recognition, and appropriate incentives such as healthcare facilities. It's important to assure donors that their bodies will be treated with utmost respect and dignity. By implementing these measures, we may be able to overcome the shortage of cadavers for dissection in the future.

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Conflicts of Interest: "The authors declare that they do not have any competing interests."

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