



Original Research Article

Knowledge, attitude and practice of body donation in central India

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ABSTRACT

Background: Body donation is one of the sources of cadaver supply to medical colleges. The shortage of cadavers in medical institutes is the main problem of learning anatomy across India. The current research aimed to assess the knowledge and attitude of the general public regarding body donation.

Materials and Methods: A cross-sectional study had conducted on 1500 voluntary people visiting or working in SSMC, Rewa (M.P.). A well-structured paper-based questionnaire had prepared for the collection of data. Descriptive data had expressed as frequency counts (percentage). Chi-square test had done to analyze differences in the awareness and willingness for body donation between the male and female groups. The difference between the two groups had considered significant if $p < 0.05$.

Results: 35.07% of all the participants were unaware of body donation. Females were more unaware and uninterested in body donation. Among aware participants, 12.53% showed their willingness for body donation. The majority of them were motivated by medical professionals and the media. 87.47% were reluctant to donate their bodies because of various reasons like religious barriers, psychological anxiety, etc.

Conclusion: We concluded that the majority of our study participants were unaware of body donation. Lack of awareness and social stigma are the main causes of deficiency of cadavers in medical institutes. To create awareness among the general public regarding body donation is the need of the hour. Maintaining an ample supply of cadavers to the undertraining medical students is of utmost importance for turning them into skillful doctors in the future.

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1. Introduction

Body donation is a process of giving one's whole body after death to medical institutes for medical training and research. Medical institutes use donated bodies to teach human anatomy, which is the branch of human science that deals with the knowledge of gross and microscopic structures of the human body. Anatomy always comes first in the medical curriculum. Information on this subject is necessary for

medical students to start their medical careers. Dissection is essential for the proper learning and understanding of human anatomy. Visual and tactile experience, obtained by dissection of human cadavers.¹ Apart from learning anatomy, it is also helpful for the development of new surgical skills.² Various variations had observed during cadaveric dissection. Proper knowledge of these variations may help surgeons during surgeries.³ That's why experience provided by the cadaveric dissection is always superior to other artificial resources like models, YouTube videos, etc. The availability of internet facilities can never replace the

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cadaveric dissection in learning anatomy.²

In ancient India, Maharshi Sushruta dissected several bodies. He believed that a skillful surgeon should acquire a good knowledge of human body structures.⁴ In Europe, the concept of dissection to gain adequate information about the human body was initiated in the 15th century. Slowly and steadily, the importance of dissection has risen.⁵

Generally, one cadaver per 10 medical students is sufficient for the optimal learning of anatomy. But in the last decade, in India, most of the running medical colleges have increased their admission capacity, and a lot of new medical colleges opened or going to open. Therefore, the dead body-to-student ratio reached 1:25 in most of the medical institutes in India.³ Consequently, the medical students face difficulties during dissection in such a crowded environment, and proper learning of human anatomy is compromised. The sources of cadavers in medical institutions are unclaimed dead bodies and body donation. But unfortunately, both sources are unable to fulfill the requirement of cadavers in most medical institutes. The current research aimed to assess the knowledge and attitude of the general public regarding body donation.

2. Materials and Methods

The current cross-sectional survey had conducted on people visiting or working in Shyam Shah Medical College and associates hospitals, Rewa (M.P.). After obtaining ethical clearance from Institutional Ethical Committee, a total of 1500 participants had selected for this study randomly between the age group of 21-65 years belonging to different professional backgrounds like staff nurses, lab technicians, shopkeepers, drivers, farmers, non-medical students, etc. Teaching staff and medical students had excluded from the study. Data regarding body donation had collected after obtaining informed consent from the participants. A well-structured paper-based questionnaire had prepared in both English and Hindi language for the collection of data. The questionnaire includes demographic characteristics, awareness and willingness/unwillingness for body donation, reasons behind their reluctance, etc. Descriptive data had expressed as frequency counts (percentage). A Chi-square test had done to analyze differences in the awareness and willingness for body donation between the male and female groups. The difference between the two groups had considered significant if $p < 0.05$.

3. Results

In the current study, most of the participants were literate. All the 1500 participants responded well by answering the questionnaires. Among 1500 participants, 918 (61.2%) were males, and 582 (38.8%) were females. 526 (35.07%) participants were unaware of body donation. They did not have any idea on the subject of body donation. 974

(64.93%) participants were aware enough and believed that donated bodies, used for medical teaching and research. We observed that unawareness about body donation was 1.87 times more in females [Table 1]. Differences regarding awareness about body donation had found to be statistically significant between the male and female groups.

Among aware participants ($n=974$), only 122 (12.53%) participants showed willingness for body donation. Only 7.95% aware females and 14.01% aware males showed their willingness towards body donation. Rest 852 (87.47%) participants knew about body donation. Still, they were not interested in donating their bodies after death for various reasons [Table 2]. The differences in the willingness for the body donation had been found statistically significant between the male and female groups.

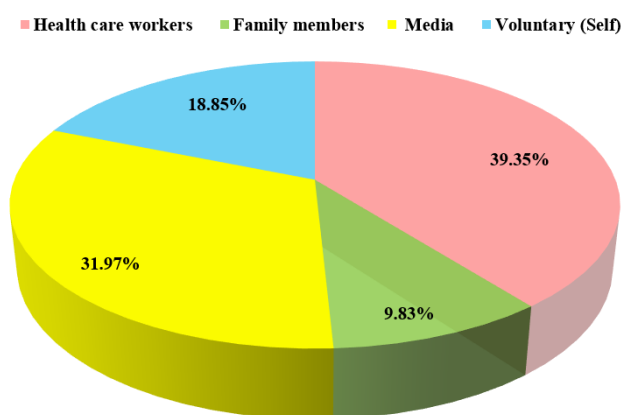


Fig. 1: Pie chart depicting proportion of different sources which motivated aware and willing participants for body donation ($n=122$)

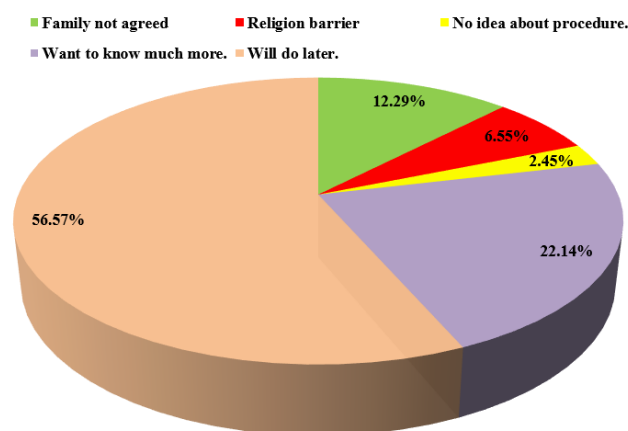


Fig. 2: Pie chart showing various reasons for not filling the body donation form by willing and aware participants ($n=122$)

Among unwilling to donate but aware participants ($n=852$), most (43.78%) were hesitant to donate their

Table 1: Gender-wise awareness of study participants about body donation (n=1500).

Awareness about body donation	Sex		Total
	Male	Female	
Unaware	183 (19.93%)	343 (58.93%)	526 (35.07%)
Aware	735 (80.07%)	239 (41.07%)	974 (64.93%)
Total	918 (100%)	582 (100%)	1500 (100%)

Chi-square (χ^2) = 237.92, df = 1, p < 0.00001, Statistically highly significant.

Table 2: Gender-wise willingness for body donation among aware study participants (n=974)

Willingness for body donation	Sex		Total
	Male	Female	
Willing	103 (14.01%)	19 (7.95%)	122 (12.53%)
Unwilling	632 (85.99%)	220 (92.05%)	852 (87.47%)
Total	735 (100%)	239 (100%)	974 (100%)

Chi-square (χ^2) = 6.05, df = 1, p = 0.013, Statistically significant.

Table 3: Frequency distribution of various reasons for unwillingness toward body donation given by aware study participants (n=852)

Reasons behind unwillingness	Total
Donated bodies could be abused/misused	145 (17.02%)
Psychological anxiety	257 (30.16%)
Religious barrier	373 (43.78%)
No personal benefits	9 (1.06%)
Believe that Medical teaching can be done without dead bodies	68 (7.98%)
Total	852 (100%)

bodies because of religious barriers or family issues. 17.02% of participants believed that the donated body had been abused or misused by medical professionals. They thought that medical students did not give proper respect to donated bodies. 30.16% of participants felt psychological anxiety, whereas 1.06% of participants were unwilling to donate their bodies after death because there are no personal benefits. 7.98% of participants believed that medical teaching and research are possible without dead bodies in this advanced technological world [Table 3].

Among willing and aware participants (n=122), various sources were responsible for their inclination to donate a body. 39.35% of participants had persuaded by the health care workers like doctors, medical students, etc. 31.97% of participants were motivated via media like newspapers and television, etc. 18.85% participants were self-motivated, while 9.83% participants were encouraged by their family members [Figure 1].

None of the willing and aware participants (n=122) had approached to fill up the body donation form. The reasons behind this have shown in the pie chart [Figure 2]. 56.57% of participants expressed that they filled and submitted the form later. 22.14% of participants wanted to gain a little more knowledge about body donation before filling the form for body donation. 12.29% of participants expressed that they want to donate their bodies, but their family members disagree. That's why they have not filled up the body donation form yet [Figure 2].

4. Discussion

Deep knowledge of human anatomy is associated with the dissection of a cadaver. So, it is mandatory to give special attention to maintaining an adequate number of cadavers in medical colleges. The number of undergraduate and postgraduate seats has increased in most of the medical institutes of India during the last few years. These institutes are facing the problem of insufficient cadavers. The main reason for the deficiency of cadavers in medical institutes is a lack of awareness about body donation. Dombé DD et al, observed that 83% of the study population were unaware of the body donation.⁶ In contrast to the above-cited research, we observed that 35.07% of study populations were unaware of the body donation [Table 1], which is consistent with the study done by Dope SA et al.⁶

Female cadavers are a must for the learning of the anatomy of female reproductive organs. But most medical institutes in India are facing the problem of deficiency of female cadavers. A male-dominated society in India or a low literacy rate among women may be the reason for this sex-related difference towards body donation. Previous researchers observed that acts of body donation had predominantly done by males.⁷⁻⁹ Similarly, we found that females were more unaware and uninterested in the body donation [Tables 1 and 2].

Despite being aware of body donation, 87.47% of participants did not want to donate their bodies as per our findings [Table 2]. Similarly, Dombé DD et al, observed

that 90% of the study population did not believe in body donation.¹⁰ We found that social, cultural, and religious constraints were the main causes for apathy towards body donation [Table 3]. These findings are consistent with the observations reported in earlier studies.^{10,11} Psychological anxiety and disrespectful behavior towards cadavers were also the important causes for hesitation towards body donation [Table 3]. Similar findings were reported by Bolt S et al.¹²

Conesa et al observed that media such as television, press, radio, magazines, etc have a great influence on the public regarding body donation.¹³ Similarly, in our study, we observed that majority of the participants were motivated by the health care workers and by the media like television, the internet, etc.[Figure 1]. Surprisingly, participants who were willing to donate still did not fill up the body donation form because of various reasons depicted in the pie chart [Figure 2]. A tour of the anatomy department should be organized for the people attending the body donation awareness programs to overcome these problems. Thus, they can observe how the donated bodies are of great help to aspiring doctors. Every anatomy department should have a display board where the names of all the body donors will mention honorably. This effort will create awareness and abolish the misconceptions among the general population about body donation.

5. Conclusion

We concluded that the majority of our study participants were not aware of body donation. Lack of awareness and social stigma are the main causes of deficiency of cadavers in medical institutes. Even the aware participants were not willing to donate their bodies after death. Psychological anxiety and the religious barrier were the main reasons for their unwillingness toward body donation. Therefore, body donation programs should be encouraged by medical colleges and NGOs. Regular campaigns must hold to create awareness among the public regarding body donation. All the queries and doubts of the people should be dealt with patiently by the health care workers. Mass awareness about body donation will help to enhance the number of cadavers in medical institutes. Consequently, the quality of anatomy learning and research work had improved. Thus doctors have good knowledge about the human body and better surgical skills, passed from medical colleges that may eventually reflect their services to society.

6. Conflict of Interest

None.

7. Source of Funding

None.

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