

ORIGINAL ARTICLE

The Approach of Anatomists towards Voluntary Body Donation: Inspiring or Dispiriting???

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Abstract

Background: Body donation is a noble act towards contributing to medical education and research. Although anatomists encourage the general population to donate bodies, the attitude of anatomists toward donating their bodies is less discussed in the literature. **Aim and Objectives:** The present study was conducted to obtain the knowledge, attitude and practice of anatomists towards voluntary body donation. **Material and Methods:** The study was conducted among the anatomists of different Medical Colleges of South India. To assess the knowledge, attitude, and practices of voluntary body donation, a semi-structured questionnaire was designed and distributed to the anatomists. **Results:** The study involved 102 anatomists. The majority 58.3% stated that the primary source of supply of cadavers was from the body donation program. When it came to voluntary body donation, only 32.4% of the anatomists were willing to donate their bodies. The facilitating factors for willingness to donate were contributions to medical education 60.3%, personal satisfaction 7.4%, motivation to the general public 4.4%, and encouragement from a close friend/ colleague 2.9%. The factors that abstained individuals from donating were: restriction from family members 30.9%, mal handling of the cadavers 29.4%, and ritual beliefs 20.6%. **Conclusion:** The approach of anatomists towards donating their bodies is not promising. It may discourage the general public from donating their bodies. Therefore, it is equally important to inspire and encourage the anatomists towards body donation.

Keywords: Body donation; Anatomists; Cadaver; Dissection; Medical Education

Introduction:

Anatomy is essential for an undergraduate medical student to understand the human body to grow into a competent professional. In the recent era, the development of technology has provided multiple facilities to enhance teaching and learning in anatomy. However, the dissection of cadavers remains a vital component of the anatomy curriculum. It is the most potent tool aiding in learning anatomy as a fundamental basis for exploring the human body [1,2].

The demand for cadavers is increasing day by day as the number of Medical Institutes are always on the rise in India. Meeting this growing need for the cadavers thus becomes a primary concern in most of the medical schools [3-6].

The active voluntary body donation program, therefore, seems to be a dominant source for procuring cadavers for medical education. Body donation is defined as the act of giving one's body after death for medical teaching and research [7].

The government and other concerned organizations have been actively involved in creating and increasing awareness about the importance of voluntary body donation among the general public [7,8]. However, these attempts are inadequate to meet the increasing demands for the cadavers in medical institutions in India.

The anatomists are regarded as the spokesperson who could address and clarify the anxieties expressed by the lay public against body donation and inspire them to donate their bodies. Although, anatomists encourage the general population to give bodies, the approach of anatomists toward donating their bodies is less discussed in the literature.

Therefore, the present study was designed to assess the knowledge, attitude, and practice of anatomists towards the voluntary body donation program.

Material and Methods:

The cross-sectional study was conducted among the anatomists of different Medical Colleges of South India. The anatomists (250 numbers) from 30 medical colleges were approached for the survey, among whom 102 individuals (47 males and 55 females) consented to participate. The institutions contacted for the study followed the 'Body Donation Program' as one of the sources for the procurement of cadavers. After obtaining informed consent, the data were collected from the anatomists of the age group of 23–71 years. To assess the knowledge, attitude, and practices of voluntary body donation, a semi-structured questionnaire was designed and distributed to the anatomists. The study was approved by the Institutional Ethics Committee (IEC 28/2017).

Socio-demographic details collected from the participants encompassed the gender, age, and teaching experience. Knowledge of the participants was evaluated through questions that explored the areas such as the source of cadavers, the existence of an active body donation and the possibility of substituting the cadaver with any other educational tool. The attitude of the participants was assessed by asking their opinion on the issues such as willingness to donate their bodies, facilitating and

hindering factors towards body donation. Practices were measured by recording the percentage of the participants who had registered for voluntary body donation.

The data were recorded and analyzed using SPSS version 16 (SPSS Inc., Chicago, IL) and the results were expressed in percentages.

Results:

Out of 250 anatomists invited to answer the questionnaire, 102 (47 males and 55 females) responded. The respondents' age group ranged from 23 to 71 years and their years of teaching experience varied from one to forty years.

Knowledge about the Body Donation

When asked about the primary source of supply of cadavers in their respective medical colleges, 60 (58.8%) stated that the cadavers were procured from the Body Donation Program while 37 (36.3%) reported unclaimed bodies. The remaining five (4.9%) were unaware of the exact source of the cadavers (Fig. 1). An active 'Body Donation' program in their respective institutions was recognized by 63 (61.76 %) of the Anatomists while 27 (26.47%) denied the same. 12 (11.77%) were unaware of such programs. The majority of the anatomists, i.e., 98 individuals (97.02%) agreed that their students were briefed about respect to the cadaver at the beginning of the academic year while two (1.49%) denied the same. The remaining two individuals (1.49%) were not sure about this process. When asked about what could be a substitute for cadaver in learning Anatomy, 81 (79.4%) among the overall anatomists affirmed that the cadaver could not be replaced by any other educational tool. However, plastinated specimens and virtual dissection modules as an alternative were also suggested by 12 (11.76%) and five (4.91%) individuals respectively. Four anatomists

(3.93%) also stated that the video demonstrations of the dissection would also help to minimize the scarcity of the cadavers (Fig. 2).

The responses when considered among the different age groups, Group I (<35 years) advocated plastinated specimens- 5 (10%), virtual dissection modules- 2 (4%) and video demonstrations- 1 (2%) as an alternative for a cadaver. Group II (35-50 years) endorsed plastinated specimens-2 (6.66%) and video demonstrations-2 (6.66%). Anatomists from group III (> 50 years) suggested only the plastinated specimens-8 (36.36%) as an alternative. However, majority of the anatomists in all the age groups were of the firm belief that the cadaver cannot be substituted by any other educational tool, i.e., Group I-42 (84%); Group II-26 (86.68%); Group III-14 (63.64%) and can only be supplemented by them.

Attitude towards Body Donation

In response to the voluntary body donation program, 33 (32.35%) anatomists were willing to donate their bodies while 30 (29.41%) were unwilling. The remaining (39) 38.24% were not sure about the same (Fig. 3).

The facilitating factors for the willingness to donate their bodies were: contributions to medical education -62 (60.78%), personal satisfaction- 7 (6.86%), to motivate the general public- 4 (3.92%), and encouragement from a close friend / colleague-3 (2.94%). However, 26 (25.5%) of the anatomists did not respond to the same (Fig. 4A).

The hindering factors for unwilling to donate their bodies as denoted by the anatomists were mishandling of cadavers- 30 (29.4%), ritual beliefs-21 (20.6%), and restriction from the family members 32 (30.9%). Three (2.9%) were unwilling to donate bodies out of fear! This fear was about a colleague dissecting their body. However, 16 (16.2%) individuals did not respond to the same (Fig. 4B).

Practices of Body Donation

The majority of the anatomists were not registered body donors- 101 (99%), while only one (1%) of anatomists had registered for Body Donation, as observed in this study (Fig. 5). The registered body donor belonged to a younger age group (<35 years).

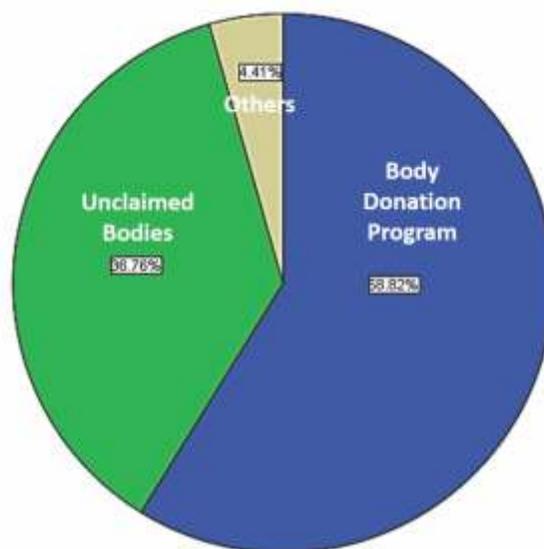


Fig. 1: Responses towards 'Major Source of Supply of Cadavers'

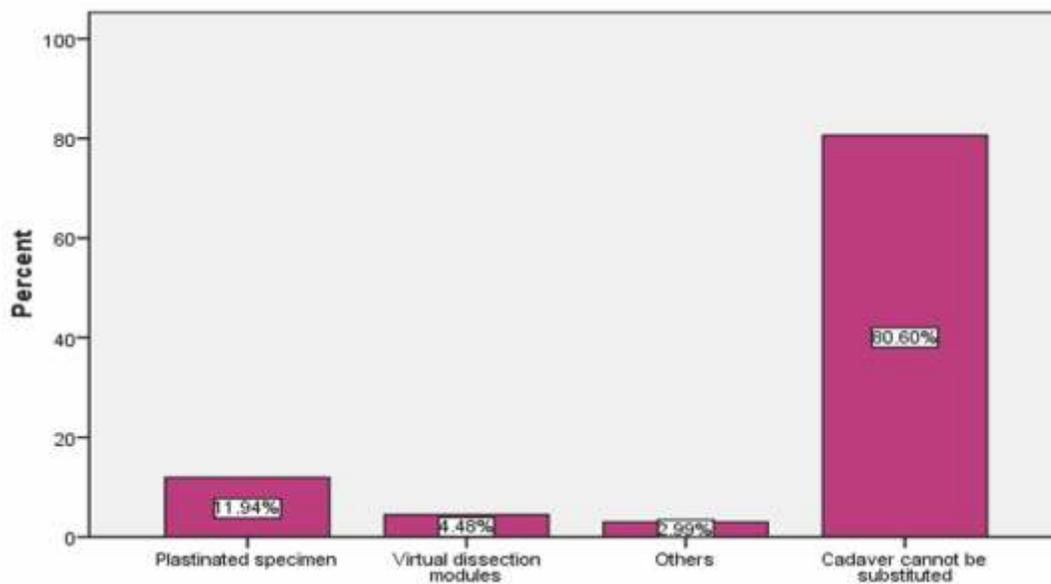


Fig. 2: Responses towards 'Substitute for Cadaver in Learning Anatomy'

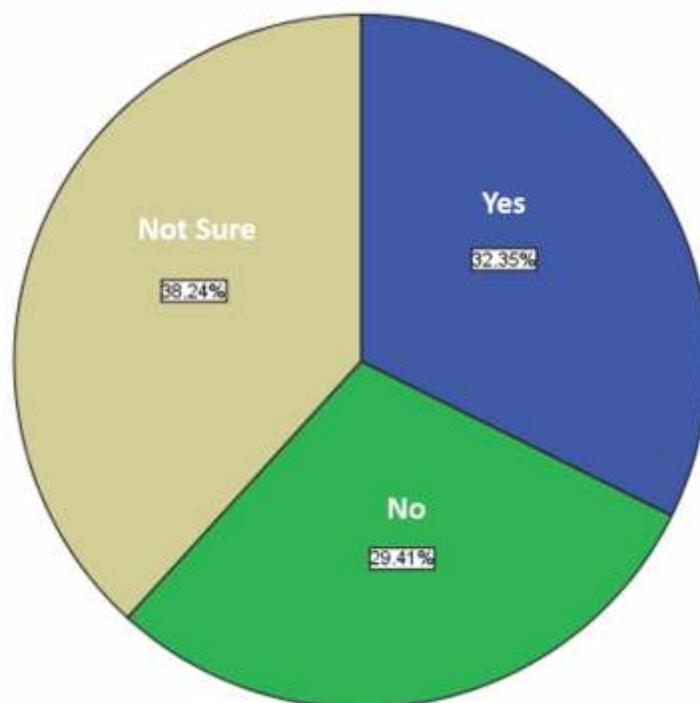


Fig. 3: Responses towards 'Willingness to Donate Bodies'

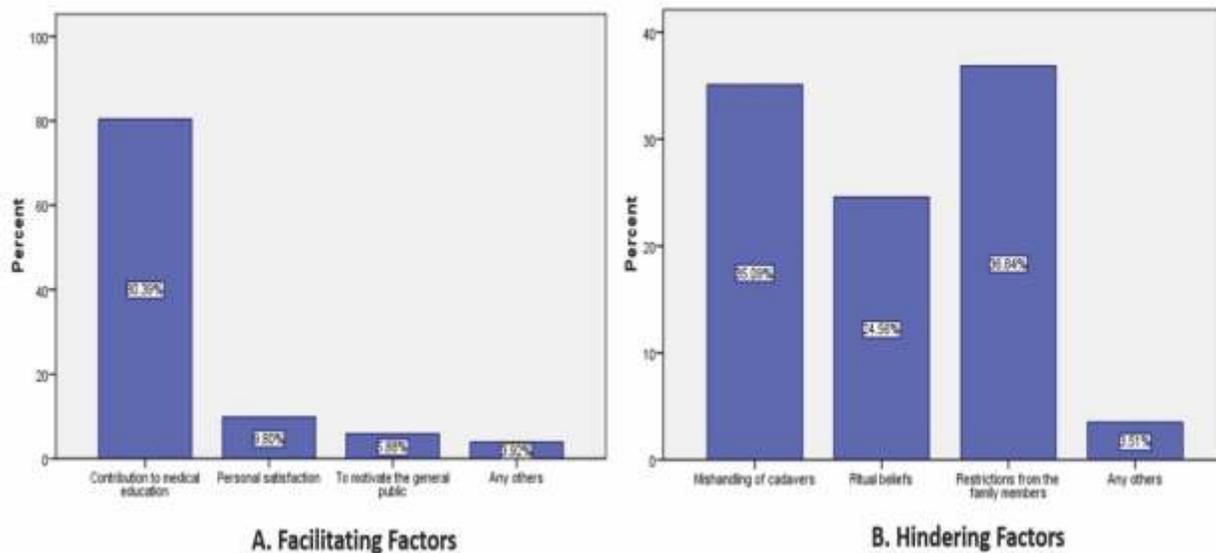


Fig. 4: Responses towards 'Facilitating and Hindering Factors towards Body Donation'

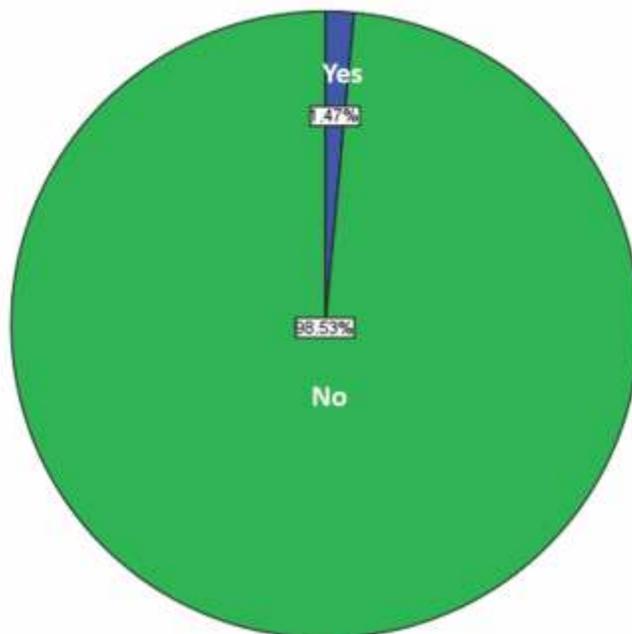


Fig. 5: Responses towards 'Being A Registered Body Donor'

Discussion:**Dissection in Anatomy**

Anatomy is the most relevant topic in an undergraduate medical curriculum (9,10). Dissection, i.e., the usage of cadavers for education and research, is regarded as a gateway and remains fundamental for medical students [1, 11]. Dissection can help students to be competent in the three domains of learning, i.e., knowledge, skills, and attitude. It aids in understanding and integrate three-dimensional anatomic knowledge, develop practical skills, encourages peer communication and build group dynamics [1, 12-16]. It can also provide a more comprehensive understanding of "normality" and "variability" [1, 12, 13].

Body Donation

The combined educational, emotional, and professional benefits of dissection place the procurement of human bodies for anatomy teaching and research at the core of anatomy practice [13, 15, 17, 18]. The means of procuring human bodies has changed throughout history [19]. Although, many countries use mainly unclaimed bodies, however, their constant availability is a matter of concern. Therefore, proper legislations have been passed to develop and maintain body donation programs to meet the growing need for the cadavers [18, 20-29].

Knowledge about the Body Donation

Subramaniam stated that in India, the need for the cadavers in the educational institutions is mainly by the unclaimed bodies [30]. Occasionally, some cadavers are donated by relatives of the deceased to teaching medical institutions according to the dead person's wishes.

In the present study, the majority of the anatomists (58.3%) believed that the body donation program was the primary source of cadavers, while 36.8%

mentioned unclaimed bodies. The remaining 4.4% were unaware of the exact source of the cadavers.

An active 'Body Donation' program in their respective institutions was recognized by 61.8% anatomists while 26.5% denied the same. 11.8% were unaware of such programs. Few were unaware of the source of cadavers and the body donation programs, as observed in the present study. This observation is a matter of concern and should be addressed since all of the participants were anatomists who were actively involved in teaching anatomy through dissection.

A voluntary body donation is a noble act, the importance of which should be imbibed in the medical students' right from the beginning of their academic career. It helps to emphasise an emotional confrontation with human mortality and morbidity [16, 31, 32]. It enables a student to emerge as a passionate medical professional with immense respect and empathy towards humankind. In the present study, the majority of the anatomists stated that their students were briefed about the respect to the cadaver at the beginning of the academic year (97%). It enables the students to respect and follow the correct procedure when handling cadavers and other biological tissues.

Medical students enter college, and their first and lasting encounter is with the cadaver. Respect for cadaver as a teacher later translates into respect for human beings as teachers and a lifelong respect for learning. Throughout the world, the emphasis on humanizing the cadaver with respect as a first patient or first teacher has gained momentum. The Medical Council of India (MCI) also favors the inculcation of the Attitude and Communication (ATCOM) module 'Cadaver as our First Teacher' in the first-year undergraduate medical curriculum

(Vision 2015) [33]. Medical education has transformed significantly in the past fifty years, due to enhancements in medicine and technology [34].

Gurses *et al.*, in their study, revealed that the methods of teaching anatomy varied between the departments of different medical schools. Dissection was the only means of teaching, as indicated by 28.3%, while 26.1% used only prosection. Both dissection and prosection were used by 39.1% while 2.2% used dissection and plastination, and 4.3% used dissection, prosection, and plastination [35].

Studies in the past have revealed that dissection of cadavers is expensive, time-consuming, and emotionally disturbing for some students [36]. Furthermore, the preserved tissues don't always provide an accurate impression of the living body. The role of dissection in developing dexterity skills is limited and has been superseded by the more versatile environment of skills laboratories [37].

In recent time's dissection is considered as old school and may not be able to keep up with new imaging modules in the medical curriculum [38, 39]. Change in the curriculum also demands implementation of new complementary or alternative teaching methods such as living anatomy [38], use of imaging tools [39], digital software based on the Visible Human Dataset [40], and 3D printing [41].

Despite the development of the new educational tools in medical education, dissection continues to be an integral part of the teaching-learning process in Anatomy. It is because it promotes respect for the human body [14, 24], introduces students to different anomalies that alter normal anatomy [12], promotes professionalism, leadership [13, 16], and provides an active learning environment [39].

In the present study, it was noted that plastinated specimens and virtual dissection modules could serve as an alternative to the cadaver in learning anatomy. Anatomists also considered that the video demonstrations of the dissection would help to minimize the scarcity of the cadavers. However, the majority of the population affirmed that a cadaver could not be substituted by any other educational tool. But they went on to suggest that these alternatives can only supplement the dissection practices and cannot replace it.

Therefore, combining the advantages of both old and new teaching methods for anatomy education is recommended, instead of replacing one for another [2, 31]. The present study also agrees with the same.

Attitude towards Body Donation

Age, religion, culture, personal characteristics, views on death and mortality, body image, and humanitarian concerns are the primary factors that influence an individual's attitude towards body donation [42]. In a study by Ballala *et al.*, wherein the participants were doctors, only 22% were willing to donate their bodies. In the present study, 32.4% of anatomists had a positive attitude towards donating their bodies, while 29.4% were against it. The remaining 38.4% were not sure about the same [43]. In a study by Sehirli *et al.*, only 15.7% of the anatomists in Turkey were willing to donate their bodies [34].

The healthcare professionals are usually considered to be beyond cultural stigmas and fear of body donation. However, their attitude, as observed in the previous [43] and the current studies, is dispiriting! It poses a challenge for policymakers to plan and execute an effective body donation program.

Facilitating Factors

Body donation is a selfless service to humanity. Expressing gratitude to the medical profession and contributing to medical education and is the most common motive for the willingness to donate bodies [43, 44]. Being useful after death, expression of gratitude and a negative attitude towards the funeral were some other factors identified in a study on the Dutch population [45]. The body should be utilized for the benefit of humanity than being burnt after death; for the betterment of the medical education and a means to express gratefulness towards society were some of the factors identified in an Indian setting [24]. In the present study, contributions to medical education (60.3%), personal satisfaction (7.4%), the motivation of general public (4.4%) and encouragement from a close friend/ colleague (2.9%) were the major facilitating factors for the willingness to donate their bodies as stated by the anatomists.

Hindering Factors

Although body donation is considered as a significant source for the cadaveric procurement, the percentage of the general population eager to donate body is inadequate [46]. The principal reason for not willing to donate bodies in India is lack of awareness towards the body donation program [24]. Another factor is the spirituality and religious beliefs. Most of the people would want the last rituals to be performed on their bodies after death according to their religion. Mal handling of the cadaver is also a crucial factor that abstains them from body donation. [24, 47, 48]. Love for one's own body, fear that the body or the organs may be misused are the other reasons cited. Medical professionals, also, are unable to accept the act of dissection on their bodies. Similar observations were also noted in the Libyan population [47].

In our study, the hindering factors identified for not willing to donate their bodies were mal handling of cadavers, ritual beliefs, and restriction from the family members. A small percentage of the anatomists were unwilling to donate bodies out of fear! The fact that the colleagues will dissect their bodies was also unwelcome to them. A study by Sehirli *et al.* on Turkish anatomists also affirmed the same [34].

Both the medical professionals as well as the general population favor organ donation over whole body donation [10, 24, 44]. However, lack of awareness and misconceptions towards organ/body donation are still a matter of concern [49, 50]. Similar observations were also found in the present study.

Practices of Body Donation

In a study on medical doctors by Ballala *et al.*, only 7% of the participants had already registered for body donation [43]. McClea and Stringer, in their study of body donors at the Otago School of Medical Sciences, reported that among the respondents who had registered for body donation, only a few were in healthcare jobs, and none was a physician [51].

In the study on Turkish anatomists, none of them were registered body donors [34]. In the present study, only 1.47% of anatomists had enrolled for body donation. The registered body donor belonged to a younger age group (<35 years).

Although anatomists campaign and motivate the general public for body donation, their attempt towards donating their bodies is meager. This practice of the anatomists may send a wrong message to society and further discourage the general population from donating their bodies to medical education and research.

Donating one's own body is a lasting gift to medical science and a remarkable opportunity given to humankind to be able to live after death. But the approach of the anatomists towards donating their bodies is not promising. It may discourage and refrain the general public from body donation. It is a wake-up call for the anatomists! It is, therefore, equally important to

inspire and encourage the anatomists towards voluntary body donation.

By doing this, the anatomists can be a role-model to the general public, and confidently create awareness about the benefits of body donation. They can thus set standards and inspire the community towards voluntary body donation.

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