

Review Article

Voluntary Body Donation-Trends, People's Perceptions, Beliefs and Practices: A Review

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ABSTRACT

The Development of basic sciences in health care field depends on a strong foundation of Anatomy. Cadavers are required for training of students of health professionals. The source of these cadavers, in earlier days, were executed criminals, unclaimed bodies and voluntary body donations. Though the most ethical way of procuring cadavers for education and research purposes is body donation, the incidence of body donations varies across the world. The reasons could be different from person to person and from region to region. Factors that influence this opinion has been shown to be spiritual, religious and cultural/traditional beliefs. Other factors which might influence the willingness to donate are age, gender, education, occupation, economy and law of the country. Spirituality with the sense of detachment and altruistic characteristics promote body donation. Age, males, education and awareness of body donation, occupation and economy also affect the intent to body donations. The health care community who understand the benefits of body donation are mostly not willing to donate because of personalized opinions of being dissected by colleagues, disrespectful behavior towards cadavers. The law of the country which encourages body donations try to address the fears and concerns of the common man to facilitate body donation. This could be in the form abiding to cremate as per his will after the utilisation of the body, written consent for the same and prioritizing his wish over others, providing due respect to the deceased in the form of memorial services, religious ceremonies and public display and honour of the donors

KEYWORDS: Voluntary Body Donation, Perceptions, Beliefs, Good Cadaver Practices.

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INTRODUCTION

The basics of human science are based on the study of the human body. The anatomy of the human is described by detailed dissection of each structure of the human body. This was documented as evidence, based on which the human anatomy was built and it forms one of the fundamental subjects and basis for development of Medicine. Use of Mannequins/

simulators will not be like the actual cadaver dissection. Each cadaver is like a new text book as there might be some or the other variations, whereas in mannequins the variations/ abnormalities are not seen.

Initially, it was the animal dissection which helped to learn anatomy. Great artists like Andreas Vesalius dissected the human bodies. The source of the human body for

dissection was the legally acquired corpses of executed criminals. This led to development of unethical practices of snatching bodies, murders and grave robbery[1-4]. This also led to development of private companies who received bodies and they were sold for profit especially in America. The accountability was very low due to little regulatory guidelines [3].

In order to overcome the unethical practices of procuring human bodies, the process was legalized by the establishment of Anatomy Acts [2,5,6] by various countries from Europe to India and other countries worldwide. The Anatomy act ensured that the bodies used for dissection were procured in a systematic way and included bodies of individuals who died in public institutions/places and were unclaimed.

By Some anatomy acts allow unclaimed bodies to be used for training in only sanctioned institutions, especially Government medical schools. From the Government medical schools, bodies could be delivered to other private institutions through proper channels. With recent law modifications and to further make the practice more ethical, there was evolution of the concept of Voluntary body Donation.

The voluntary body donation program is a choice made by the common man to will his/her body for use of medical education and research after their demise. The whole body donation is a program run by the medical schools/universities in order to procure bodies for teaching purposes. This is the most ethical way of receiving human cadavers necessary resources to develop life-saving medical expertise and skills and for the advancement in medicine. This also reduces the need of using unclaimed bodies, because all the unclaimed bodies are first sent to Government medical colleges and once their requirement is fulfilled then the surplus bodies are sent to private medical colleges on priority basis. (Quote state Govt. order).

The International Federation of Associations of Anatomists (IFAA) has issued the "Recommendations of good practice for the donation and study of human bodies and tissue for anatomical examination" to facilitate countries to formulate guidelines for development of Body donation programs and prioritise the will

of the donor to donate for the purpose of education and research[7].

In the recent past and future, the most common source of human cadavers used in various medical schools is Voluntary Whole Body Donation.

Uses of Body Donations

If human cadavers are sourced through voluntary body donations, they are the most legal and ethical ways to receive bodies for the purpose of health care education training. This also allows increased donations. Increased donations in countries like Japan, Germany, United Kingdom, Australia, New Zealand, Japan has given rise to development of many surgical simulation centers and programs which facilitate surgical training of post graduates/residents/young and senior consultants and academicians to learn new skills, hone existing skills and experiment to develop newer techniques. In addition, Germany uses these donated cadavers to dissect and demonstrate the anatomy for public display[3-4]. A network of these body donation programs may resolve issues of scarcity of cadavers in other regions by sharing the resources through legal permissions and Acts. This will benefit the whole community of Health Care.

Trends in Body Donation

The body donation programs are in various stages of development in various countries. Countries like Netherlands, Italy, Japan, Korea, Sri Lanka have good reserves of cadavers through well running body donation programs. Some are even having excess of them. In Australia and New Zealand, the only source is through body donation programs⁸. In the United Kingdom especially in Ireland, England, Wales and Scotland body donations are the source of cadavers. In Europe, Italy, Netherlands, Germany and Switzerland believe in body donations and are doing good; Greece is facing low body donations and hence a deficiency.

In North America, the practices are unethical but the trend is slowly changing. Countries like Canada have good body donation programs to run the medical training programs. The USA

Table 1: Showing the trend of cadaver resources across different continents.

Country	Predominantly Unclaimed bodies	Predominantly Body Donations	Unclaimed and Body Donations	unclaimed/imported bodies
Europe	Greece[3], Turkey[1,4]	Italy, Netherlands, Germany and Switzerland[3-4]		
United Kingdom		Ireland, England, Wales and Scotland[3]		
North America		Canada, USA[3]		
South America			Argentina[3]	
Africa	Ethiopia, Ivory Coast, Nigeria, Rwanda, Tanzania, Zambia[3]	South Africa[3]		
Middle East				Bahrain, Jordan, Oman, Qatar and UAE,[3] Libya[11]
Asia		Japan, Korea, Sri Lanka	Taiwan[9] India[10], China[3]	
Australia	Australia & New Zealand[3,8]			

has a good number of donation programs and also parallel for-profit companies who receive bodies mostly from the younger generations dying of terminal illness like cancer.

In Africa, only South Africa is promoting and getting cadavers through Body Donations.

Asian countries like Japan, Korea, Sri Lanka and India have good body donation programs.

Other countries like Middle East (Bahrain, Jordan, Oman, Qatar and UAE) are dependent on unclaimed bodies and importation. Libya totally depends on importation from India[3,11-13]. In Africa, body donation is not accepted and depends on unclaimed bodies in countries like Ethiopia, Ivory Coast, Nigeria, Rwanda, Tanzania, Zambia etc. In South America, countries like Argentina still have very low body donations. Asian countries like China have very low body donations.

Views on Body Donations

Though body donation has been accepted worldwide there is scarcity of human cadavers. The reason for scarcity of cadavers could be due to decreased body donations¹ or increase in the requirement. For example India, there has been sudden spurt of new medical colleges[6] in the past 10 years and many surgical simulation programs are

happening which has led to an increased demand but supply is low, hence the scarcity. Though it is a body donation by personal will, many factors play a role in the common man’s mind before taking the decision of body donations. Many studies have been conducted all around the world to find out what motivates and what hinders a common man towards body donation. The factors/opinions that influence the decision of making a body donation have been enlisted in Figure 1.

Factors playing a role in acceptance of Body Donation concept:

Spirituality: Spirituality is an individual or personalised practice. The person tries to think and behave beyond materialistic desires and tries to overcome challenges of desiring something materialistic and tries to reach out to the supreme creator. He believes in simple living, not to hurt others and do good to the nature and humanity. There are feelings of hatred, jealousy, greediness, lust, rude behavior. He develops into a person who can take all the feelings in a calm and composed manner. These aspects of spirituality give a strong intent to help others and thus are ready to sacrifice for good intentions. This sense of ‘doing good’ can be an important motivator for body donation. They believe in the fact that

they must be useful during and after life. When these feelings are nurtured there is a strong desire to donate body for the benefit of human kind and this deed gives them a sense of satisfaction. They are ready to overcome the traditional/religious practices and think beyond.

Indian mythology mentions the donation of sacrifice made by a Sage Dadhichi to forgo his body so that his bones could be used to make a weapon called Vajra (diamond) in order to defeat the demons by the Gods. This can be one of ancient instances of willed body donation for the betterment of Humankind. Sushruta, an ancient surgeon in 500 BC dissected the human body[2].

Shankarcharya, the famous revolutionary spiritual saint preached that the body is for the use of others and death is not the end but the beginning. Shrimad Bhagavad Geeta, second chapter, sloka 22 states 'Idam Shariram paropakaram' which means our body is for the service of others emphasizing and promoting both organ and body donation[5,10].

Based on these contexts and trying to believe in these concepts of sacrifice and be of use to others can help and motivate to donate bodies for the medical education and research.

Religious and Cultural Beliefs: All religions be it Hinduism, Islam, Christianity, Buddhism etc in one way or the other express the intention of body donations for the cause of humanity.

Hindu Dharma in Shrimad Bhagavad Geeta, second chapter, sloka 22 preaches by the saying "Vasaamsi Jirnaani Yathaa Vihaaya Navaani Grahnati Naroparaani Tathaa Shariraani Vihaaya Jirnaani Anyaani Samyaati Navaani Dehi" which translates as 'As a person puts on new garments, giving up old ones, the soul similarly accepts new material bodies, giving up the old and useless ones'[14]

Since the body is mortal one should not be attached to the body. This concept promotes body donation. Though the spiritual concept exists, the majority of Hindus believes in the last rituals to be conducted as per the tradition which emphasizes on the integrity of the body during the final abode (Moksha) and hence do not wish to donate their bodies[15].

Nainam chchindanti sastraani nainam dahati paavaka, The soul which is present in the body cannot be destroyed by weapons, by fire nor by wind.....(ch 22,)

According to Sariraka Upanishad the body is composed of elements of earth, fire, air, water and cosmic space called as pancha bhuthas. From this concept it is believed the body being composed of these nature elements must merge with the nature after death[16]. Hence the body should end in the earth by burial or cremation. To facilitate this, many rituals are practiced for which an intact body is required. These practices do not allow a person especially Indians to will their bodies for donation. If the same concept of burial or cremation is followed after utilisation of the cadaver there might be scope for acceptance of body donation. Few of those people who donate their body request to give a tuft of hair or nails of the fingers to represent them in the funeral rituals by the donor's relatives.

Christianity also supports body donation especially the catholics[15]. The whole of Europe and North America and South Africa which are predominantly Christian countries have good number of body donors. This is a proof that Christianity favours Voluntary Body Donation concept.

Islam believes in saving human lives and hence promotes donation be it organ or body donation[4,15]

The Koran states that if anyone saved a life it would be as if he saved the life of whole people. Postmortem examinations and study of anatomy is acceptable as per Islamic regulations[1,4].

Buddhism preaches the concept of "Daan "or Donations and hence promotes body donation. Japan, Sri Lanka and Taiwan universities promote body donations as an act of altruism, love and gratitude[17-18]. Master Cheng from this University used the term "Silent Mentors' 'for the cadavers rather than mere instructional material as they teach in silence [3,9,18-20].

Thailand has a good source of cadavers through body donations which was initially

from unclaimed bodies. The reason for change was the official approval of body donation by the King and giving the status of "Ajarn Yai" meaning a great teacher[21]. By this the strong message of the donors being teachers to the medical students was given which promoted body donation.

The Confucian culture believes in the integrity of the body both in life and death. Hence, Chinese culture believes in an auspicious ending of human life through cremation which requires an intact body[9]. Hence China which follows the Confucian culture has paucity of bodies through body donations.

In China, ethnicity plays a major role in the decision of body donation. A study conducted on the Yi, Bai, Hani, Dai and Han ethnic groups revealed the major influencing factor as their traditional beliefs[22].

While the Hans group was influenced by Buddhism, believed that the soul was attached to the body during living and left after death to soul gathering areas. Hence there was no connection between body and soul. This favoured social responsibilities and increased body donation among their group.

Whereas the minor ethnic groups of Yi, Bai & Hani have a different story to tell. They strongly believe that the deceased continue to live after death. Hence, the ancestral worship is given a lot of prominence because they believe that the deceased influence their future generations. Funeral practices were given utmost importance and this has led to unwillingness to donate bodies among these groups.

The Dai ethnic group have a Buddhist influence on them. This makes them spiritual to transcend the fear of life and death making them more comfortable to think in favour of body donation[22].

According to the African ethnic groups, the person exists and communicates with the living even after death. The Zulu culture rituals are many like guiding the spirit before burial to rituals carried out before and after burial and return of the spirit after one year of burial. For them burial is the only mode of body disposal after death. These beliefs and

practices hinder the willingness to body donation[13,20].

The spiritual context of detachment, developing the concept of mortal and immortal, being helpful to nature and mankind is preached in all religions. The traditions, customs and cultural and ethnic practices rules over and hinders the concept of body donation. This has been highlighted as one of the most influencing factors inhibiting a person from willing their bodies for medical science.

A person has to be strong in his spiritual beliefs of Altruism of doing well to others, being of help to the medical field which break the barriers of tradition and motivates them to donate their bodies. This concept of altruism is on the increase and an important factor which positively influences body donation[15,23].

Age: According to Bhusari PA et al[6] mentions that most of the donated bodies were in the age group 71-80 years. Armstrong[24] from Australia studied that younger age groups were more willing to donate than the older Australians. Same was the study results of Maryland Boulware[25]. Though there are variations in age groups, mostly donated bodies are in elderly group. This could be due satisfaction and fulfillment of duties, maturity increasing the spirituality in them as age increases thus favouring body donation. Recent development of social practices such as nuclear families, increase in the number of old age homes, parents being deserted motivates them to donate their bodies as they are wary of their relationships.

Education Status: Education in the right sense creates awareness and this can be an influencing factor towards body donation. Hence, awareness about the concept of body donation, its purpose and utility in the field of science improves the willingness to donate. Hence the educated class is more prone to body donation than the uneducated class [2].

Ignorance and misconception of the beliefs can lead to wrong decisions of not willing to donate[5,6,15,26]. The variation also exists among different ethnic groups. For example in China, the Han major ethnic group showed

positive correlation of body donation with educational status. Whereas the lower ethnic groups such as Bi, Dai and Hani groups showed negative correlation with education. Less educated were more willing to donate as their educational status affected their financial status. In order to overcome the high expense burden of rituals they were ready to donate more when compared to the educated in the minor ethnic groups[22].

Here, education does not always mean degrees attained. The education might indicate the level of awareness regarding the concept, ability to think and rationalize the altruistic intent versus the traditional beliefs which might influence the decision on body donation.

Body donation is a personal decision and hence needs to be addressed at a personal level in addition to public common platform awareness through media platforms which also is essential.

Personalized counseling allows us to understand the person's concept of body donation, why he is willing to donate or not donate and thus pave the pathway of customized convincing and addressing issues thus making him to think the righteous way and improving his chances of willingness to donate[26].

The rural urban ratio is low in terms of body donation practices. Rural and remote areas indicate low education status leading to low intellectuality to think beyond and about body donation[6,22].

Hence, education in different contexts has different influences on willingness to donate bodies.

Gender: Generally males are more willing to donate than females[2,6,15]. A study in Japan indicated that male respondents showed a positive attitude towards body donation. Females needed to be persuaded. They were more willing to donate bodies than organs[26]. Another study mentioned that the males were more willing to donate as they wanted to avoid the financial burden of funeral practices[23].

Considering the male patriarchal society in most of the countries, education and maturity was considered to be the property

of male gender, hence they might be more willing to donate as they could decide on their own. With societal norms changing trends, with more freedom for women, the gender mismatch might reduce in the near future.

Economic background:

People from poor economic burden are more prone to body donation to avoid funeral costs to the family[15,22,23]. Some ethnic groups like the Han of China showed more body donations among people with a high economic background[22].

Body donations are comparatively higher in high income countries than poorer countries. Exception to this assumption are the gulf states who are comparatively low in body donations[12].

No single factor can totally influence body donation. A mix of factors may play a role in body donation decisions. In Middle East countries even though economically sound other reasons such as psychological and familial factors play a more important role in decision making[12].

Law of the country: The view and vision of the country/region also influences the opinion of the common man of that region towards body donation. Initially when the cadavers were sourced in an unethical manner, the statutory authorities intervened and brought in guidelines to curb the unethical practices. This brought into existence many acts called Anatomy acts. One of the countries to initiate the foremost was Europe followed by other countries like USA, Asia etc.

Europe is flourishing in terms of cadavers input due to robust promotion of body donation. The guidelines give personal rights to the common man to pledge his body towards body donation after his death. This right of the common man is given utmost importance and thus encourages body donation. Only in cases where the adult is unable to take a decision will the next of kin will be the deciding authority. People aged 16 and above can make their wish to donate through handwritten documents. Each country of Europe majorly promotes body donation but have their own legal guidelines

with few customisations. Most of the European nations guide the institutions to have a mechanism of burial of the body after being used for education and research. Some are cremated by the institutions, some are returned back to the donor's relatives in coffins, and some institutes cremate and spread the ashes on a specific land area designated for the same. Some institutes emphasize on teaching students to treat cadavers with respect[4]. Certain nations do not allow commercialization (plastination) of the body parts/ organs[17], public display of the dissected body parts, selling of bodies across country borders. Some nations allow donation of body parts during hospital stays in cases of amputations with written permission of the potential donors. Without written agreement of consent the institutes cannot keep the anatomical specimen on a permanent basis[4,27]. All these are being strictly followed to make it comfortable and trustworthy for the public to donate.

In the USA many acts exist such as the Uniform Anatomical Gift Act[4,5] which makes the process of body donation more scientific, ethical and efficient as per the desire of the deceased which is given supreme importance. As per this act the individual has the sole right to decide whether to donate his/her body after death. Official procedures are simplified and streamlined to make the process of body donation easy. The Texas anatomical Gift Act in addition to the above allows emancipated minors to have parental consent to be donors[4].

There have been many legal cases where issues related to who is the deciding authority for body donation after death of an individual, importance of informed consent before tissue, organ or body donation, complicated administrative forms coming in the way of intent and leading to legal conflicts. Based on these circumstances there have been suggestions to improvise to treat anatomical donations different from general property law, have legal advisors to universities during development of regulatory guidelines, giving greater power to the individual's wish to donate[28]. All these will help the common man to take a

decision towards body donation.

In India, Anatomy acts have been established in various states since 1948. This has legalized the wish of an individual to donate his body but clarity regarding whether the deceased wish has to be fulfilled is not mentioned. The regular practice is that as per law, the donor's relatives get the rights after the deceased whether to fulfill the wish of body donation or not. In this regard certain class of people makes legal affidavits of their wish to donate and submit to the institutions. The institutions have minimal or no role to play in deciding about the fate of the donor's body. All this ambiguity will lead to delay or no decision to donate. The body donor has to get the written consent of the witness – it's there in the body donor's form – please refer the form for body donation.

In certain countries like Thailand [21], the king's decision is upheld who promoted body donation. One Professor of Taiwan University by his preaching of cadavers being silent mentors and the act of body donation being altruistic has benefitted in terms of increased body donations [9].

Black Africans are not willing to donate as they are influenced by the political history of being mistreated and misutilised for forced body donations by the whites in the past for their own education[12].

Familiarity with medical Science: Many studies have been conducted regarding awareness, willingness to donate, their opinions on body donation, where the study population is familiar with the medical background mainly anatomists, health care professionals and students.

All these articles reveal that these populations were mostly aware of body donation and also participated in creating awareness among family members, friends and public because they believed in body donation and its utility. Though the health care professionals and students were willing to donate, they had not pledged in the same proportion. In most instances, the incidence of pledging was less than 5%.

When explored further to find why they did

not pledge, the following are a few reasons documented[1,2,15,26,29]:

- a) Would like to do at a future point of time
- b) Family members were not agreeing to their decision
- c) Did not like the context where a known person would dissect their body
- d) Were not happy with the way the cadaver was treated in skill labs.
- e) Religious beliefs

Predictors of Voluntariness to Donate bodies

The psychological characteristics of a human being have a major influence on body donation. A study was conducted to assess Altruism, Purpose of life, Gratitude, Death anxiety through 4 questionnaires. The study revealed that body donors wanted to contribute to society, had low levels of anxiety related to death, strong feelings of gratitude and purpose in life, and were more satisfied in life than non-donors⁹

Other reasons:

Many people though aware of body donation were not willing to donate for many other reasons than stated above [2,5,10,23,25,30].

- a) They had the fear of their donated body being misused/Organs being sold
- b) Disrespectful behavior towards cadaver
- c) They felt the anatomy teaching could be done without using cadavers
- d) They felt there were plenty of unclaimed bodies that could be used.

Another important factor which influenced the decision towards body donation was role modeling effect. When people of importance in the society, family members donated[8], this had a positive effect which could motivate the inner circle and public to donate their bodies. If the institutions were willing to hand over bodies to relatives after dissection, allow cremation after use, approval of disposal of body remains as per the will of the donor, might have a positive effect on improving willingness to donate bodies[2,15].

Financial assistance though unprofessional might be persuasive towards body donation [10].

Strategies for improving body donation:

Many articles have taken opinions as to how the body donations can be increased [2,10,15,20, 29]

The prime opinion enlisted in almost all articles mention the creation and increasing awareness about body donations through media such as press, TV, social media might improve body donations especially among the rural and uneducated group of people. Addressing the concerns of the donor's and donor's relatives can also help convince for body donation. Educating the students to respect the cadavers, increasing memorial services, might work in favour of body donation. Strict regulations and simplified procedures and formalities with a good support system would also increase body donations. Honouring the donor with public display and giving the due recognition might also favour body donation.

Good cadaver practices:

Many institutions based on the legal guidelines of the country have developed their own mechanisms to promote and encourage body donations among the public. The following are the good cadaver practices being followed in various institutions.

Having a good support system to provide information regarding body donation, to answer queries, allay anxiety will help the donors to decide on body donation. Personalized care of the body and the relatives at the time of donation will help and encourage the relatives to hand over the body by donation.

Teaching respect to cadaver and its importance in a doctor's life are emphasized to the students.

2 min silence by the surgeons or health care professionals before practicing on the cadaver as a token of respect and acknowledgment of the noble deed of donation upholds the respect of the body donors.

Conducting thanksgiving annual programs for the donors with health awareness programs to benefit the donors. Some countries like Thailand [21] conduct two ceremonies at the beginning of the course (Dedication ceremony)

and after the course (cremation ceremony) wherein the students, donor's relatives, faculty and monks (Buddhists) conduct various rituals and pray for the deceased. The students carry their cadavers in procession along with the monks to the cremation building during the cremation ceremony. All these instill gratitude and respect among the students. The donors feel satisfied that they are being treated with respect and appropriately honored for the same. Many countries also promote memorial services to acknowledge the donations made by the common man[4].

Sri Lanka also conducts such similar religious ceremonies attended by medical students, academic and nonacademic staff members and relatives of the donors as a mark of respect [18]. In India, Student Cadaver Oath ceremony during the students course initiation is conducted which will help the students to be empathetic toward the body donors and understand the essence of body donation.

Providing free health annual checkups to the registered donors might be a help and added incentive to the donors. Certificate of Honour that the person is a body donor also increases the self-esteem of the donors as their donation is being acknowledged.

CONCLUSION

Voluntary body donation is a noble donation for the benefit of medical science. This should be encouraged from all parts of the world. The body donation is influenced by the attributes of altruism of doing good to humanity in most of the circumstances. Religious considerations, cultural beliefs, education status, laws of the country, familiarity with healthcare might be the determining factors for increased or decreased body donations. All these have to be considered by the regulatory authorities and regulations framed in favour of whole body donations. These strategies will help increase cadavers by body donations. Legal consideration for cross border transportation will help sharing and addressing severe scarcity or no uniformity of cadavers used for health care training. Creating awareness, the

need for body donation, developing donor friendly initiatives, addressing their concerns and following good cadaver ethical practices will increase body donation.

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