

Human Body Donation to Anatomy Laboratory for Educational Purpose: Legal, Ethical and Religious points of view

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ABSTRACT

Body donation refers to whole body donation for teaching and learning processes considered a noble act. In most religions, body donation law, organ transplantation act, tissue act permits body donation for medical and research purposes. In the current article, we have discussed mainly body donation laws of different countries along with necessary criteria that should be fulfilled by body donors along with the law that is necessary to claim the unclaimed bodies and give consent for the body donation. The article also includes a brief view regarding the religious perspective of major religions about human body donation.

Keywords: Body donation law, unclaimed body, religious view, sources of cadaver



BACKGROUND


Body donation refers to donation of human whole body after death to medical colleges and/or research institutes for the teaching and learning process. Medical colleges use embalmed bodies to teach anatomy but due to the improvement of technologies cadavers were replaced by 3D models and platinated models but this act limited the sources of the study of variation leading to narrowing the knowledge. Therefore, cadaver donation leads to the study of the identification of variation, development of new surgical skills in a realistic manner.¹ For the teaching and learning process, dissection and prosection remain the gold standard for medical students. About 500 BC, Sushruta dissected the number of a human cadaver

and believed that to be a good clinician must be a good anatomist, so whole-body donation should always be encouraged.^{1,2} Bodies available on medical institute generally comes from three major source

1. Unclaimed bodies
2. Willed donation bodies
3. Family bequest bodies

Mostly the unclaimed bodies are available which are permitted by most of the countries utilize for medical education and research purpose but in the United States of America, New York state senate bill S4430D signed in august 2016 prohibits using the unclaimed body for the educational institution without written consent from spouse or relatives.³ Willed body donation are often made by a person

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still alive and should follow the process of donation as mentioned in the law of that country.

In 2012, according to International Federation of association of anatomist (IFAA) recommended that donated bodies can only be used for anatomy educational and research purpose but the study conducted by Winkelmann et al. over 68 countries medical school, around 22 countries uses cadaver coming from body donation and most other 18 countries especially from Asia uses unclaimed bodies.² The sources of cadavers are classified into four groups (Table 1).

NECESSARY CRITERIA FOR BODY DONATION

An international study conducted by Aybar et al. over 81 anatomists of 21 countries, regarding views over human body dissection and body donation explained that dissection of the cadaver was responsible for developing essential skills, attitudes, and professionalism, 81% of respondent agrees over dissection and only 75% of respondent were willing to donate their bodies. Initially, those who were not believers were more likely to donate their bodies afterlife.⁵ The former Study was also supported by Omana et al. over anatomy professor and student in Mexico about willingness towards organ and body donation explained that most anatomists agree the human body dissection with the highest rate of 74.9% positive opinion regarding their body donation, 18.8% were undecided and 87.8% of student supported the cadaver dissection with a willingness to donate their bodies along with family members.⁶ The study conducted by Jon Cornwall over body donation and digital technology ethical issues influence the body donation programmed but many issues were still unclear regarding the transaction, informed consent, family involvement, decision making, information sharing, and commercialization.⁷ In 2014, Beijing, IFAA proposed that there must be an international body donation network that helps the countries with difficulties in setting up donation program and mentioned that informed written consent was required from every potential donor bounded by the law of their country.⁸ Especially in the case of Japan according to section 6 of the law of 16 July 1997, a family can veto the decision of relatives to donate.⁹ The necessary criteria for the willed body donation process along with the body donation law of the different countries are described in Table 2 and Table 3 respectively. The criteria for the person to claim the unclaimed bodies and provide consent for the body of the deceased are mentioned in table 4.

RELIGIOUS ASPECT OF HUMAN BODY DONATION

The religion followed by the body donor plays a vital role in the whole body and organ donation program, the major religion such as Christianity, Islam, Hinduism advocates the donation as a noble act to save the life of others. The study conducted by Nikzad et al. on the "Cultural acceptability and personal willingness of body donation after death over 331 Iranian students" explained that 77% of student agree with the idea of utilizing body donation services, with 25% of participant willing to donate their body and explained that cultural acceptability and personal willingness is not associated with the demographic factor. The researcher also suggests that encouraging people with the involvement of mass media can be the best solution for addressing the lack of cadavers.¹⁷ A similar study performed in Kenya by Mwachaka et al. over student and surgical trainee exposure to dissection and attitude toward human dissection, most of the trainee (70.7%) and student (68.1%) opposes the body donation which was mainly due to cultural (37%) and religious (20%) barrier but 67.9% of participant recommended that the body donation practice and concluded that repeated dissection exposure doesn't change the body donation perception.¹⁸ The major religions' viewpoints are described below in Table 5.

CONCLUSION

From past, present, and future, for research and educational purpose, human cadavers remain an essential component, and the act of donation must be transparent and should follow the standard ethical guideline approved by each country. In most religions, body donation law, organ transplantation law and tissues act of many countries permit the donation of the body for medical and research purposes. So, common standard international ethical guidelines should be followed and must contain standard operation procedures and digital media technology should also be used to influence body donation in society. So, there would not be a shortage of cadavers while the teaching and learning process.

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Table 1: Sources of a cadaver used for research and educational purpose in different countries⁴

Sources of cadaver adapted from Winkelmann et al			
Exclusively donation	Mostly donation	Exclusively unclaimed	Mostly unclaimed
Japan, South Korea, Srilanka, Australia, New Zealand, Austria, Netherland, Spain	South Africa, China, Portugal, USA	Ethiopia, Ivory Coast, Nigeria, Bahrain, India, Iran, Qatar, Iran, Saudi Arabia. Singapore, Thailand	Ghana, Italy, Kenya, Malaysia, Turkey, Greece, Mexico, Brazil

Table 2: Criteria for willed body donation

	Criteria	Explanation
1.	Body donor	Any sex, caste, religion, or any socioeconomic status having the capacity of writing or orally in presence of witnesses mentioned by the law of their own country to the authorized institution. ¹ All donor should screen for an infectious disease which includes HIV AIDS, Hepatitis B & C, tuberculosis, syphilis, Tetani etc. ¹⁰
2.	Body acceptor	An authorized institution approved by the government
3.	Factors to improve body donation	Education, Awareness programmed through popular public personnel, paper media, publicity by political and religious leader ¹⁰
4.	Factors affecting body donation	Less awareness, education, age factor, occupation, religious belief, spirituality, demographics, personal characteristics ¹⁰
5.	Criteria for rejection	Autopsy, amputation, infections, contagious, accidental cases, communicable diseases, decomposed, obesity, body with organ removed except eye ¹⁰
6.	Process of donation	Identification of approved medical institution Willingness form of an institution with a legal witness approved by law. Body donation plan should be discussed with family so that after death they can be informed to an approved institution All legal procedure should be completed by the institution after the body received in mortuary Body embalmed, stored, and used as necessary
7.	Purpose	Research, education, medico-surgical education, development of new surgical technology
8.	An obligation for receiving institution	Health and safety issues tested for contagious disease Handlers should be vaccinated at regular interval Responsibilities of the institution should be ethically guided

Table 3: Timeline of Body donation law and anatomy act of different countries

	Country	Law	Description
1.	Ancient India	-	about 500 BC ago, Sushruta dissected several human bodies ¹
2.	Herophilus	-	Conducted systemic human dissection ²
3.	Andreas Vesalius	-	In 1514-1564 AD, the first medical student to dissect cadaver ²
4.	USA	Massachusetts of America the Anatomy act-1831	Allowed dissection of unclaimed and donated bodies for medicolegal purpose ²

5.	United Kingdom	Murder act-1752	Permitted the cadaver of criminal for dissection ¹
		Anatomy act-1832	Permitted use of the unclaimed body for dissection by physicians and surgeons ¹
		Human tissue act-1961	Use of tissue of unclaimed/ donated body for anatomical dissection and research purpose ²
		Anatomy act-1984 and revised human tissue act-2004	For organ donation activities ²
6.	Austria	Austrian personality right based on article-16 of Austrian general civil code-1812	States "Everyone has innate rights, already obvious by common sense, and is therefore regarded as a person, slavery or servitude and the exercise of power related to this right is not permitted in this country" ⁸
7.	France	Article R 2213-13 of the "Code general des collectivités territoriales"	Law only directly applicable for a legal framework for body donation for anatomical purpose ⁸
		Article 16-1-1 (paragraph 2 of civil code)	explains that "remains of deceased people should be treated with respect, dignity, and decency" ⁸
8.	Germany	-	No any legal procedure regarding body donation
9	Italy	Article 32 of "Regio Decreto no 1592" (August 31, 1933)	States that "cadaver whose transplant is not performed at the expense of relatives up to the sixth degree or by confraternities or associations who may have made commitments for funerary transport of associated and cadavers coming from medicolegal investigation and not claimed by relatives in the family group is reserved for teaching and scientific study" ⁸
		Regulation of mortuary authorities (Decree of the republic no 285/1990)	Specifies that "delivery to the university anatomical institute of a cadaver for teaching and scientific study must occur after 24 hours after death" ¹¹
		Organ donation for transplantation law 91/1999 and cremation law 130/2001	Explains "Corpse of people only who made a declaration of donation of their bodies for anatomical education during their lifetime with consent sign by relatives" ¹¹
10.	Netherland	1555 AD	Dissection of corpse legalized
		Funeral act-1869	Dissection of corpse mentioned stated that "people who want a dissection could demand a body but they should also bequeath their body for dissection in a will" and only performed with supervision of mayor and medical doctor ⁸
		Burial and cremation act-1955	Explains interpretation of dissection as a final destination, but later in 1968 significant amendment was made as dissection as an alternative way of body disposition ⁸
		Burial and cremation act (1991, article 67)	Emphasized that "human corpse can only be dissected in the interest of science or scientific education." ⁸

11.	Turkey	Addendum 2 of article 14 "Regulation concerning scientific research of human cadavers"	Explains "Bodies to donated to scientific research, those who die in a medical facility can be used for scientific research, if the claim is not made by family within six months of the date of death, provided that the person was not in any way a subject of judicial prosecution unless otherwise stated in their will" later law numbered 2597 was amended for " cadaver for whom no claim is made." ⁸
		Turkish civil code-2001	"Testamentary cadaver", "Stations for embalming and storage of cadaver" respect for the dead body also mentioned ⁸
12.	India	Anatomy act-1948	stated that "collection of dead bodies for teaching purpose within approved medical institute provided police have declared a lapse of 48 hours with no claim for medical purpose" ^{1,2}
		Bombay act-1949	Amended by the legislative council in 2000 AD to permit body donation before death to an approved medical institute for educational and research process, with several amendments in 2014, now called Maharashtra anatomy act ^{2,10}
13.	Pakistan	Transplantation of Human Organs and tissue bill 2007, passed by the Senate on 10 February 2010 and signed by the president on 17 March 2010	Explains "restriction of organ donation only to close blood relatives whose age are above 18 years and banned to those who are not related to recipients" ^{12,13}
		Police rule 1934-chapter XXV para 25.38 (Pakistan)	stated that "unidentified corpses should be handed over to any charitable society or an institution for imparting instruction in medical sciences which is willing to accept them, if not then buried in the normal manner" ¹⁴
14.	Srilanka	Transplantation of Human tissue act -48 of 1987	Explains the "procedure for the donation and removal of human bodies, organ, and tissues for therapeutic, scientific-educational and research purpose" and also explains that any person above the age of twenty-one years may consent in writing to the donation, to take upon his dead body or any part or any tissue ¹⁵
15.	Nepal	Human body organ transplantation-1998 (authenticated Feb 3, 2002)	Explained in 6 chapters that deals with the medical terms, a definition used in this act, permit relating to organ transplantation and private license, organ transplantation coordination committee, activity relating to organ transplantation, offense and punishment, miscellaneous ¹⁶

Table 4: Person who is eligible to claim the body and give consent for body donation of the deceased [adapted from Rajasekhar SSSN et al]¹⁰

	Country and law	Eligible to claim the body and give consent for body donation of the deceased
1.	United States of America (USA), Uniform Anatomical Gift Act - 2006	Spouse, Children, Parents, Brother, Sister, Grandchildren, Grandparents, Agent of the deceased, adult who gives special care and concern for the decedent, acting as the guardian at the time of death, authorized person to dispose of the decedent's body

2.	England, Human Tissue Act 2004	Spouse, Child, Parent, Brother, Sister, Grandparents, Grandchild, Stepfather or stepmother, Half brother or sister, Partner, Long-standing friend
3.	Scotland Human Tissue Act-2006	Spouse, Child, Parent, Brother, Sister Grandparent, grandchild, uncle, aunt, cousin, niece, nephew, Civil partner, Partner in a relationship like a husband and a wife not less than six months, Long-standing friend
4.	Ontario, Canada. The Anatomy Act-1990, Alberta, Canada. Human Tissue and Organ Donation Act- 2006, British Columbia, Canada. Human Tissue Gift Act-1996, Prince Edward Island, Canada. Human Tissue Donation Act-2008	Relatives, Spouse, Adult Child, Parent, Adult sibling, Brother, Sister
5.	South Australia, Australia Transplantation and Anatomy Act-1983, Queensland, Australia Transplantation and Anatomy Act-1979	Spouse, Adult, Children, Parent, Adult siblings, Spouse Biological, siblings adopted or surrogacy step brother or sister, stepchild, senior available next, Friend, the person undertaking to dispose of the body (Unclaimed body), Guardian, Live-in partner, Person who shared residence and knows the wishes of the deceased regarding body donation, Domestic partner, A person who, under Aboriginal tradition or Island custom or cultural tradition, is regarded as a child or a sibling
6.	New Zealand Human Tissue Act-2008	Spouse, Child, Parent, Brother, Sister, grandparents, step-child, step-parent, step-brother, step-sister, a Nominated Person(s), Civil union partner, in a close relationship, Guardian
7.	India, Bombay Anatomy Act 1949, now Maharashtra Anatomy Act-2014, Delhi Anatomy Act-1953	Near relatives, spouse, children, siblings, consanguineous relatives, anyone associated through marriage, friends

Table 5: Major religious aspect of human body donation

	Religion	Description
1.	Hinduism	When traced back to an ancient holy book, a saint named Dadhichi donated his bones God to kill demons, as Hindu religion also believed that the law of karma and reincarnation, where the soul considered to lives forever and remains immortal, and get rebirth as new physical form. They also believe in "Dharma" means doing good for others which is always desired. ^{2,19}
2.	Buddhism	Explains that "organ donation is a personal decision and left to individual conscience as the donation is noble act" and honor those who donate body for medical science and save a life. ^{19,20}
3.	Islam	Explains that "every action or thing is categorized as legitimate or prohibited". At the end of the lifetime, all human beings will be resurrected and face the day of judgment as mentioned in Quran Q41. 20-22, ²¹ violating the human body is strictly forbidden and different Muslim country has its concept regarding body and organ donation. ²⁰
4.	Christianity	Believes that an organ donation is a worthwhile act of altruism as pope benedict XVI openly advocates organ donation and the church of England also advocates that organ donation is a Christian duty. ²⁰

5.	Judaism	Believes that "after death, burial should never be delayed and take place within 24 hours" ²⁰
6.	Sikhism	Believes in "life after death and continuous cycle of rebirth" and body donation for the noble act was viewed positively. ²⁰
7.	Confucianism	Chinese philosopher suggested that "One is born with a complete body and should die this way" but modern Confucians acknowledge that "to sustain the life of another is a valued thing" ²⁰
8.	Shinto	is the indigenous spirituality of Japan believed that "body is pure and gather impurities throughout life" so, considered as bad luck if interfered with it after death. ²⁰

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