Original Research

A Study on Attitudes and Practices of Voluntary Body Donation among Medical Personnel of a Medical College: Evidence from North India

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Abstract

Background: Voluntary body donation is an important source of cadavers for anatomical study and medical education of the budding medical health professionals. Therefore, this study was planned to assess the attitude and practice regarding voluntary body donation of medical personnel working at a medical Institute in Northern India.

Methods: A cross sectional study was conducted among medical personnelat S.M.S Medical College and Attached Hospital Jaipur India by the Department of Community Medicine.Data was collected from consenting individuals in the age group of 21–60 years by using a proportion to size sampling method. A Pre designed semi structured questionnaire was used to assess attitude and practice regarding whole body donationin study population (n=500, 126 were Doctors and 374 were paramedical staff) and they were asked to fill questions by their best of understanding within half an hour.

Results: Majority of participants were from 31-40 age group. 68.2% of respondents were willing to donate their body for medical education and among them only 0.8% of the study participants had already registered for body donation. Younger participants (21-30 years) had a positive attitude (58.11%) as compared with age groups above then 30 years (P<0.001). It was also found that rural population (53.38%) had more positive attitude than the urban population (32.95%), (P<0.001).

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Conclusion: The present study identified that there is a considerable difference regarding the attitude and practice of Body donation among medical personnel. The study focuses on creating awareness among medical professionals about their responsibility and attitude toward society.

Keywords: Cadaveric, Medical Education**,** Whole Body Donation.

Introduction

Body donation is a gracious act, Shankaracharya firmly believed in concept of body donation or organ donation and said Iddhamsharerumparopakarum i.e. the body is for use of others and death is not the end, it is beginning[1]. In ancient India human body was dissected by Shushruta by about 500 B.C.[2]

Anatomy is a unique subject dealing with the knowledge of the human body structures. A sound knowledge of the anatomy is essential for medical personnel to begin a career and become effective and competitive. Voluntary body donation (VBD) is primarily utilized for practical purposes, as teaching and research in anatomy rely heavily on cadaver dissection.[1]

By 18th and 19th century the anatomical dissection became very popular in the United States for imparting medical education. When the demand for cadaveric supply increased, the thefts by grave robbers become more common which led to selling of the bodies to medical school for dissection[3].

Human cadavers for purpose of study are in scarcity with mushrooming of medical institution in India. Voluntary body donation is the need of the hour. A voluntary body donation is defined as the act of giving one's body after death for medical research and education[1].

Dissection of unclaimed bodies obtained from the police along with voluntary body donation is the major sources of cadavers. Burial or cremation of dead bodies are symbols of religious traditions followed across the world. However, the concept of awareness of VBD in large scale is utmost necessity of the hour.

The VBD practices are governed by the Bombay Anatomy Act enacted in 1949, which has been uniformly adopted in all states of India with various amendments and modification (Ajita and Singh,2007;Subramanium,2008)[4].

The amendment of 1999 to the [Karnataka] Anatomy act from 1957 defines an unclaimed body as ''body of a person who dies in a hospital, prison, or public place or a place to which members of the public have got access and which has not been claimed by any person interested within such time as may be prescribed'' (ANATOMY ACT,1957)[5]

The decision to become a body donor is influenced by factors such as social awareness, culture attitudes, perceptions of body donation, religion, and perceptions of the body mind relationship[7]. Studies indicate that most donors are primarily driven by altruism and their desire to aid the advancement of medical knowledge and to be useful after death. Other reasons include helping future generations, expressing gratitude for life and good health or for the medical field, to avoid a funeral[7].

The offering of financial incentives to increase donation or as acknowledgement for donors is generally considered to detract from the act of donation and serve as a deterrent[4]. However, a US study showing positive correlation between body donation numbers and funeral cover cost savings offered as compensation suggests that, the added incentive could be a persuasive factor for donors[7].

Many of the bodies donated to any organization are used for scientific research and training of medical students to teach anatomy. But they are also used to improve and create new medical technologies such as cancer research, updates on Alzheimer's, and research to improve surgeries[8].Therefore it is suggested that medical institutions and anatomist embark more enlightenment campaigns regarding VBD by conducting medical exhibition and explain this noble act as a precious gift to the mankind. The inability of our medical institutions to attract public for VBD for the purpose of dissection might be due to social and religious concepts[1].

In order to plan for awareness campaign among population for voluntary body donation, attitude and practice of medical personnel is of utmost importance.

Therefore, this study is planned to assess the attitude and practice regarding voluntary body donation of medical personnel working at S.M.S. Medical College & Attached Hospitals Jaipur.

Aims and objectives

1. To assess the attitudes and practices regarding voluntary body donation among medical personnel.
2. To assess the motivation behind the will of participants to donate their bodies after death and perception of the individual regarding where the body will be used and for what purpose.
3. To determine the socio-demographic factors associated with attitude and practices about voluntary body donation among medical personnel.

Material & Methods

The present cross sectional study was conducted among medical personnel of S.M.S Medical College and Attached Hospital Jaipur India under the supervision of Community Medicine Department of S.M.S Medical College, Jaipur,. Samples for this study were collected after approval from Institutional Research Review Board (IRB).

Sample size is calculated at 95% confidence level error of 0.05 assuming 50% anticipated prevalence of adequate knowledge among the health care medical professionals (as per the reference seed article),the required sample size was calculated to be 384 which was rounded off to 500. A pre-designed semi-structured questionnaire regarding knowledge, attitudes and practices about VBD was used to collect data. The questionnaire was validated by three faculty members of the department and one from another department to ensure correctness and significance of the questions. Out of the total sample size of 500, 126 were Doctors and 374 were paramedical staff. The inclusion criteria for the participants was as:

1. Participants age > 18 years among both sexes.
2. Can read and write and understand Hindi.
3. Those who can give written informed consent for this study.

A separate isolated chamber to ensure confidentiality/ privacy was used for data collection. The investigators explained about nature and purpose of the study after developing the rapport with the participant. A brief description about questionnaire was given to alleviate apprehension and understanding and were assured about confidentially and anonymity.

The study participants were asked to fill all questions by their best of understanding within half an hour. They were strictly instructed to not write their names or disclose their identity.

Statistical analysis: Data thus collected was entered in Microsoft Excel Sheet by investigator on the same day to minimize data entry bias if any and analyzed using SPSS 24 Version. Continuous variables were summarized as mean and standard deviation, while nominal/categorical variables as percentages. Chi-square test and other non-parametric test were used for nominal/categorical variables.

Observations and Result

About 50% participants were in age group of 31-40 years. Of the total respondents, 60.2% were male and 39.8% females. The mean age of the participants was 39.80±10.91years. 84.8% of participants was married. The socio –demographic profile of the study population is depicted in table 1 and figure 1.

Table 1: Age & sex wise distribution of medical Personnel's (N=500)

Age Group (years)	Sex				Total	
	Male		Female			
	N	%	N	%	N	%
21-30	54	17.94	20	10.05	74	14.8
31-40	138	45.85	102	51.26	240	48
41-50	38	12.62	26	13.07	64	12.8
51-60	71	23.59	51	25.63	122	24.4
Total	301	100	199	100	500	100
Mean age 39.80±10.91 years						

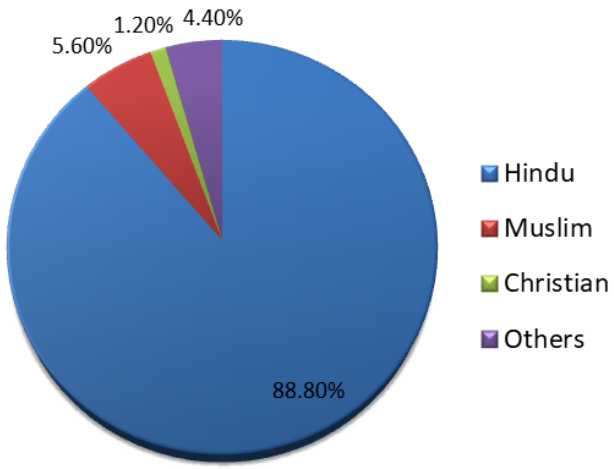

Figure 1: Religion wise distributions

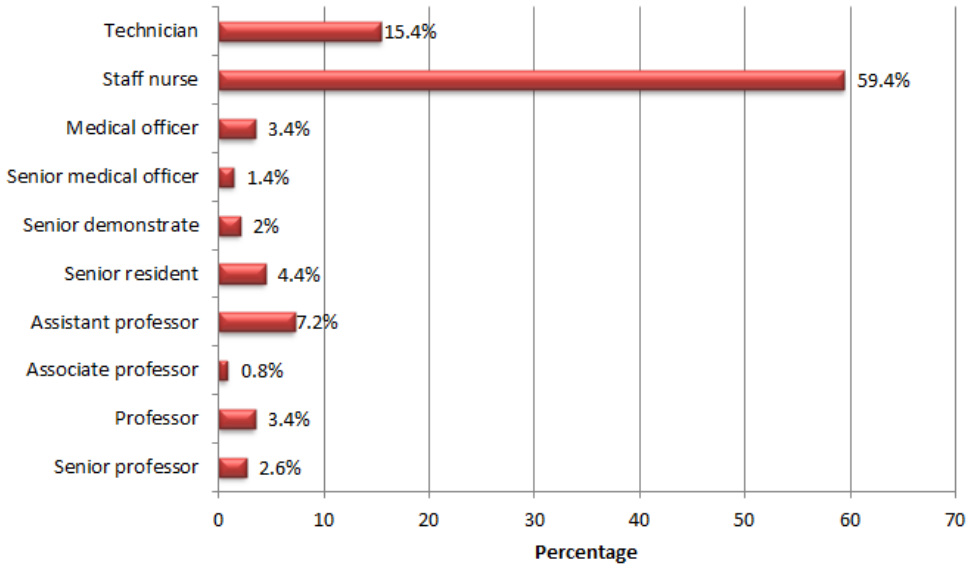

Figure 2. Academic designation wise distributions of medical Personnel's

Regarding attitude for their own body donation. It was found that 68.2% of respondents were willing to donate their body for medical education while 26.4% and 5.6% were neither interested norsure about their body donation. The factors that motivate whole body donation are depicted in table 02.

Table 2: Attitude of Participants regarding their own body donation for use in medical education.

Attitudinal Variables	Number of Respondents	Percentage (%)
Service Oriented	17	3.4
In favour of medical education	487	97.4
Unspecific/voluntary	8	1.6
Some belief	0	0
Convinced by someone	8	1.6
Relatives/friends/neighbours have donated	26	5.2
Disappointed in the life they have had	4	0.8
Don't want to be buried/cremated	0	0
If I die unidentified	34	6.8

Among the multiple responses obtained from each subject, the most common reason cited for wiliness to donate bodies as in favour of medical education (97.4%).

47.2% of study participant think about body donation after the death only for dissection purpose and 2.4 % were willing for organ transplantation. While 39 % were willing to donate for both purposes. Only 0.8% of the study participants had already registered their name for body donation and 53% indicated that their decision would not be affected even if others knew of having registered their names for body donation.

Association of various Socio- demographic characteristics with participant's opinion to donate the body after death was found non-significant ("P-value" >0.05) with sex, marital status and type of family but it was significantly ("P-value"<0.05) associated with age and residential status (table 3.)

Table 3: Association of various Socio- demographic characteristics with participant's opinion to donate body after death.

Age groups	Donate body after death					Test of significance
	only for organ transplantation	only for dissection	For both purpose	Unwilling	Total	
21-30	2(2.7%)	25(33.78%)	43(58.11%)	4(5.41%)	74	Chi Square =40.07 <0.001
31-40	10(4.17%)	140(58.33%)	72(30%)	18(7.5%)	240	
41-50	0	21(32.81%)	31(48.44%)	12(18.75%)	64	
51-60	4(3.28%)	50(40.98%)	49(40.16%)	19(15.57%)	122	
Total	16(3.2%)	236(47.2%)	195(39%)	53(10.6%)	500	
Sex						
M	9(3.17%)	145(51.06%)	106(37.32%)	24(8.45%)	284	Chi Square =5.4 "p-value" =0.14 [NS]
F	7(3.24%)	91(42.13%)	89(41.2%)	29(13.43%)	216	
Total	16(3.2%)	236(47.2%)	195(39%)	53(10.6%)	500	
Marital status						
M	13(3.07%)	199(46.93%)	162(38.21%)	50(11.79%)	424	Chi Square=4.38 Df=3 P=0.22 [NS]
UM	3(3.95%)	37(48.68%)	33(43.42%)	3(3.95%)	76	
Total	16(3.2%)	236(47.2%)	195(39%)	53(10.6%)	500	
Residential status						
Rural	3(2.03%)	46(31.08%)	79(53.38%)	20(13.51%)	148	Chi Square =25.30 "p-value" <0.001 [S]
Urban	13(3.69%)	190(53.98%)	116(32.95%)	33(9.38%)	352	
Total	16(3.2%)	236(47.2%)	195(39%)	53(10.6%)	500	
Family type						
Nuclear	2(1.06%)	93(49.47%)	75(39.89%)	18(9.57%)	188	Chi Square =4.95 "p-value" =0.17 [NS]
Joint	14(4.49%)	143(45.83%)	120(38.46%)	35(11.22%)	312	
Total	16(3.2%)	236(47.2%)	195(39%)	53(10.6%)	188	

Association of various Socio- demographic characteristics with participants' decision for donation (when any known person had donated the body) was found non-significant("P-value" >0.05) with sex, marital status and type of family but it was significantly ("P-value" <0.05) associated with age and residential status. (table 4)

Table 4. Association of various Socio- demographic characteristics with participants' decision for donation when any known person had donated the body

Age groups	Participants decision for donation when known person donated their body				Test of significance
	Yes	No	Not sure	Total	
21-30	11(14.86%)	37(50%)	26(35.14%)	74	Chi Square =18.40 "p-value"=0.005 [S]
31-40	21(8.75%)	139(57.92%)	80(33.33%)	240	
41-50	11(17.19%)	23(35.94%)	30(46.88%)	64	
51-60	24(19.67%)	66(54.1%)	32(26.23%)	122	
Total	67(13.4%)	265(53%)	168(33.6%)	500	
Marital status					
Married	55(12.97%)	218(51.42%)	151(35.61%)	424	Chi Square=5.06 "p-value"=0.0.08 [NS]
Single	12(15.79%)	47(61.84%)	17(22.37%)	76	
Total	67(13.4%)	265(53%)	168(33.6%)	500	
Residential status					
Rural	21(14.19%)	64(43.24%)	63(42.57%)	148	Chi Square=8.90 "p-value"=0.01 [S]
Urban	46(13.07%)	201(57.1%)	105(29.83%)	352	
Total	67(13.4%)	265(53%)	168(33.6%)	500	

Discussion

Body donation is regulated by various acts according to each country and is considered a modern expression of solidarity[4]

A total of 500 medical personnel were included in the study and nearly 50% were in age group of 31-40 years, out of which 60.2% were males and 39.8% females. The mean age of the participants was 39.80 ± 10.91years and the sex ratio of male to female in the study was 1.5:1.

Similar finding was reported by Ballala k et al.(2011)[9] where out of 106 participants, 71% belonged to the age group of 25-34 years and male (57%) to female (43%) ratio was (1.3:1). Saha A et.al (2015)[10] also reported in a study on body donation after death in Kolkata among 300 medical personnels, 52% participants were in age group of 34-45 years and out of them 60% were males and 40% females. The mean age of the participants was 38.80 ± 10.82 yearsand the sex ratio was 1.5:1. According to the study conducted by Delma D et al (2014)[11] on 52 subjects, males (n=30, 57.6%) and females. (n=22, 42.3%) were almost equal in number and the mean age of all participants was found to be 69.8 ± 8.82 years

In the present study majority of the participants (84.8%) were married while 15.2% were unmarried. Similar findings were reported by Delma D' Cunha .et .al (2014)[11] in which (86.53%) participants were married, by Ballalak et. al. (2011)[9] in which (54%) were married and rest were unmarried. According to Jedrzejewski B.et.al (2016)[12] (67%) participants were married. Similar multi-centric study was also done by Cornwall et al.[13]in New Zealand, Ireland and South Africa which yielded similar results.

In present study majority of the study population (88.8%) were Hindus and out of them 59.8% belonged to general category and rest were ST, SC or OBC. Similar findings were also reported by Ballalak .et al. (2011)[9] where Hindu were 83%. In a study conducted by Golchet et all (2000)[14] Hindu contributed 78%, while Sehirli US, et al (2004)[15] reported (75%) Hindusin their study.

As per current study, 45% of the medical participants were GNM, the rest possessed either

a postgraduate degree or a super-speciality degree and these findings were similar to the study done by Ballala k .et al. (2011)[9] in which (52%) medical personnel had a graduate degree and rest were P.G and Ph.D., The difference in our study may be due to the inclusion criteria as we included both medical as well as paramedical staff. Delma D' Cunha .et .al (2014)[11]reported majority of the population had completed secondary education (46.15%) followed by graduation (29.9%) and the difference may be because of the location and place of study. This is in agreement with the findings of Cornwall et al.[13]

In the present study 59.4% participant were staff nurse, 2.6% were Senior professors, 3.4% were Professor, 0.8% were Associate professor, 7.2% Assistant professor, 4.4% were Senior resident, 2% were Senior demonstrator, 1.4% were Senior medical officers, 3.4% were Medical officer and 15.4% were Technicians which was similar to the study done by Ballala k .et al. (2011)[9] showing 49% PG tutor, 28% as assistant Professor, 9% associate Professors ,and 14% of the study participants as Professor. This difference may be because of the different sampling technique used in the two studies. Delma D' Cunha .et .al (2014)[11]reported 40.38% of the participants were unemployed and this may be because of the different socio-culture status of Karnataka.

Donors' Attitude towards body donation:

The attitudes of donors playan important role in body donation. In the present study, all participants were medical personnel and were expected to be beyond culture stigmas and irrational fear of body donation, 68.2% had a positive attitude towards donating their own bodies. Studies done by Ballalak .et al. (2011)[9] (22%), Golchet et.al.(2000)[14] and Morgan et .al.(2008)[17] had reported similar positive attitude findings.

Factors responsible for body donation:

The most common reason cited for willingness to donate bodies was in favour of medical education (97.4%) and various factors are believed to have contributed towards it. Fennell.et.al.(1992)[18] reported that the most common reasons for making a body donation were to aid medical science and gratitude towards medical profession. Boulware .et. al (2004)[19] concluded that demographic and attitude factors were found to be strongly related to whole body donation. In a study by Chung, C.S et.al.(2002)[20] they concluded that the existing consent procedure for cadaver donation at United states medical schools did not provide sufficient information to potential donors to constitute a fully informed consent. Boulware. et. al(2002)[19] reported factors such as demographic, cultural, attitude, and clinical were associated with willingness to donate. Golchet et all (2000)[14] reported that age, religion, culture, personality characteristics, views on death and mortality, body image and humanitarian concerns influence opinion towards body donation.

Practices:

In present study only 0.8% of the study participants had already registered their own name for body donation, 68% were not aware of any known person having registered for whole body donation and 53% indicated that their decision would not be affected even if they knew of anyone having registered their names for body donation. Similar study done by Ballalak .et al. (2011)[9] 7% reported registration, 64% were not aware and 72% believed that their decision will not be affected. Kass LR et.al. (1985)[21] and Sukolet.al(1995)[22] have similar findings.

Conclusion

In the present study, though both the groups have heard of body donation, their knowledge about various facts and procedures involved in this process needs to be improved which will enable them to dispel the misconceptions. The present study warrants the need to ameliorate the willingness of medical personnel in particular to donate their whole body because a motivated person can only influence the potential donors in the society.

Limitation

1. Present study was hospital based so the finding may not reflect the pattern and profile of all the voluntary body donors in the general public.
2. Chance of information bias may be present due to social sensitive issues (recall bias).

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Conflict of interest: Nil

Recommendations

1. Organized efforts are needed to raise the awareness about body donation and change the mindset of the society towards body donation.
2. The various reasons cited for 'body donation' should be addressed with educational and awareness programs.
3. Body donationcells should be made mandatory for all medical colleges for effective implementation of the program.
4. Developing a voluntary body donation program/unit in each medical college to address the issues of scarcity of cadavers by conducting sensitization classes /workshops for medical faculty as well as students and appreciation for volunteers.

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