



## Disposition of Nigerian Anatomists towards Donating their Bodies for Medical Education and Research

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### Abstract

**Background:** *The use of unclaimed bodies for anatomical dissection has been the main method of instruction at most Nigerian medical institutions. The dearth of cadavers and increasing numbers of medical school has prompted the need for body donation for teaching and research. This study aimed at assessing the disposition of anatomists towards body donation in Nigeria.*

**Methods:** *A survey was conducted at the Anatomical Society of Nigeria (ASN) 2019 conference held at University of Calabar, Cross River state Nigeria in November 2019 to test two hypotheses: Anatomists approve of the donation of their own bodies for medical education and research; Disposition towards body dissection and donation are not dependent upon incentives, gender or upon the extent of teaching experience. Responses to questionnaires were analysed qualitatively.*

**Results:** *Our findings showed that Anatomists disposition towards body donation are dependent upon gender, teaching experience, culture, religion, doubts about honor and dignity maintained in the dissection halls while performing dissections. Among one hundred anatomists that responded to the survey; Males (77.8%) were more receptive to the concept of body donation. Most teachers (61%) said they were unwilling to donate their bodies, and 39% said they would donate their entire bodies.*

**Conclusion:** *Our study highlighted the issue of unwillingness to donate bodies amongst anatomist. We therefore strongly recommend awareness campaign for body donation and sensitization of handlers of cadavers about dignity and respect of the donated body.*

**Keywords:** *Body Donation, Education, Cadavers,*

### Introduction

Gross anatomy is the branch of anatomy that studies the macroscopic structure and organization of organs and organ systems<sup>[1]</sup> of the human body. Among the most common methods of study is dissection, in which the corpse of an animal or a human cadaver is surgically opened and its organs studied. Working intimately with a cadaver during

a gross anatomy course has been shown to capture the essence of the patient-provider relationship<sup>[2]</sup> a major learning tool for studying the structural details of the human body while training anatomical, medical and health sciences professionals<sup>[3]</sup>. It has been used by anatomists for centuries and attempts to substitute the human cadaver have proven to have a negative effect on

the quality of teaching, research in anatomy<sup>[4] [2] [5]</sup> as well as medical education in general .

Historically, anatomists have depended on the gallows, jails, or poorhouses as sources of bodies, but the 1960s and 1970s saw the rise of a viable alternative: body donation, or informed consent of the deceased during his or her lifetime<sup>[6]</sup> The voluntary body donation program was started at the Department of Human Anatomy, Medical University of Silesia, Poland in 2003<sup>[7]</sup>. Though several universities in some developed countries presently use innovative ways of teaching anatomy such as use of prosected specimens, three-dimensional (3D) models, radiologic pictures, and computer-aided learning in place of cadaveric dissections<sup>[8]</sup>, most anatomy educators still see cadavers as one of the most valuable assets in teaching anatomy especially for doctors who will specialize in surgery and its related subspeciality. Memon<sup>[3]</sup> in his study “Cadaver Dissection Is Obsolete in Medical Training! A Misinterpreted Notion” believes that there is an ever increasing need for cadaver dissection in training health professionals.

The sources of cadaver used for medical education and research depend on local legislation, culture, religion and socioeconomic factors. Historically, the sources have been through illegal grave digging, unwilling claimed cadavers, ‘purchased’ cadavers, unclaimed cadavers and donated cadavers<sup>[9]</sup>. Today, in compliance with the International Federation of Associations of Anatomists (IFAA)<sup>[10]</sup> recommendations willed body donation programs are now well established source of cadavers in most parts of Europe, North America, some parts of Asia and South America<sup>[11]</sup>. Unfortunately, the use of unclaimed bodies and condemned criminals are still very popular and extensive in most developing countries worldwide<sup>[12]</sup>.

In Nigeria willed body program is unavailable even amongst anatomists regardless of a deficient supply of cadavers for anatomical studies and the difficulties related with sourcing cadavers. Ignorance, culture, religion, and social constraints

may be the hindrances in involving people for body donation in our country, Nigeria. The aim of this study was to investigate the disposition of anatomists towards body donation in Nigeria.

## Materials and Methods

### Population surveyed

A descriptive, cross-sectional exploratory study with a quantitative approach was carried out during the “16th Annual Scientific Conference/ Annual General Meeting of Anatomical Society of Nigeria (ASN)” held at University of Calabar, Cross River state Nigeria in November 2019. The study involved completing a questionnaire. Participation in the present study was voluntary and anonymity and confidentiality were guaranteed.

### Methodology

Questionnaires were distributed, and collected by hand. The items within the questionnaire sought to obtain data on the opinions of anatomists about donating their own bodies for cadaveric studies. Parameters considered for analysis includes gender and teacher’s teaching seniority. The teacher’s beliefs in life after death (transcendental/spiritual convictions) were also taken into account as well as possible geopolitical/cultural differences.

### Inclusion Criteria

- a) Participants (with at least a BSc degree in Anatomy) who gave informed consent.
- b) Participants who filled up questionnaires properly

### Exclusion Criteria

- a) Those who did not give informed consent.
- b) Uncompleted questionnaires

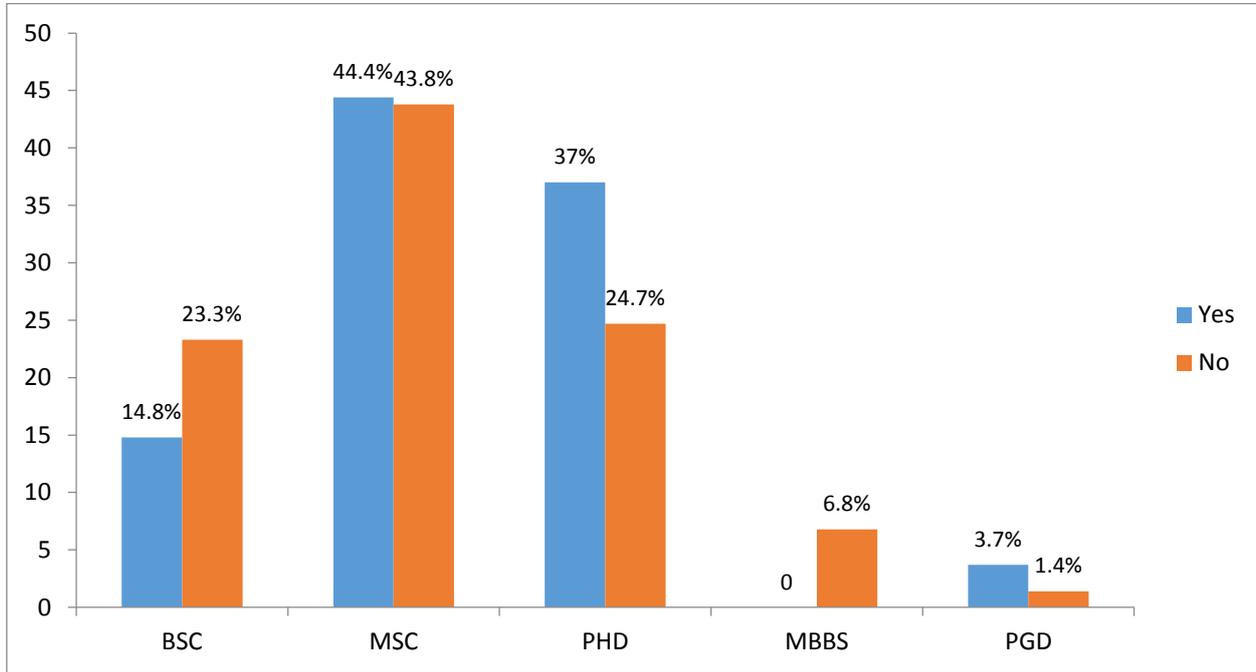
In all 118 people gave informed consent to participate in this study. By method of complete enumeration after discarding the persons who fulfilled exclusion criteria 100 participants were finally included as study sample. The filled-up questionnaires were analyzed qualitatively and calculation was done accordingly.

**Statistical analysis**

Statistical analysis was done using the Statistical Package for the Social Sciences (SPSS) version 23

(SPSS Inc., Chicago, IL) with *p* value <0.05 considered significant.

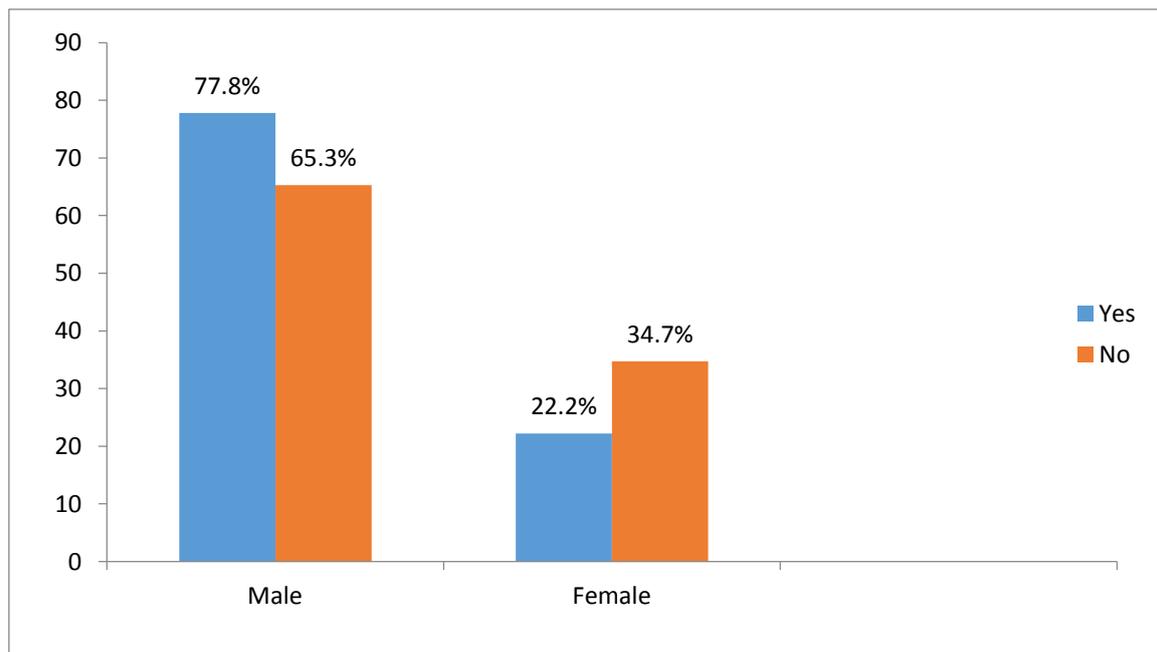
**Result**



**Fig-1** Comparison of willing participants percentage present study

Percentage comparative distribution of respondents willing to donate and those unwilling to donate their bodies for dissection. Output reveals that high level of education can also influence an individuals' resolve to donate his/her

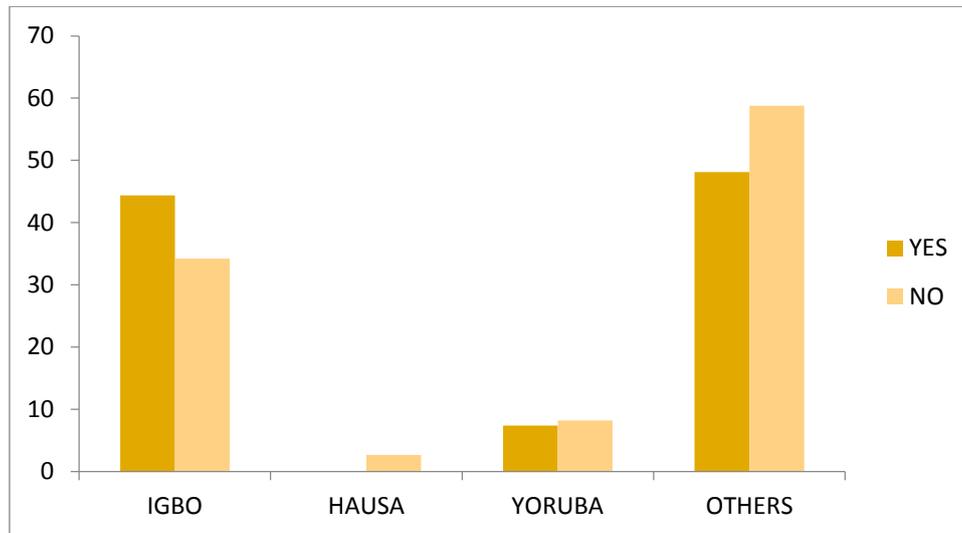
body for dissection especially for Anatomists as this data indicates. This percentage of highly educated Anatomists willing to donate their bodies represent a significant population size.



**Fig-2** Percentage distribution of willing donors among male and female

A significant population of respondents were male. Generally, male Anatomists in Nigeria were more willing to donate their bodies. A significant

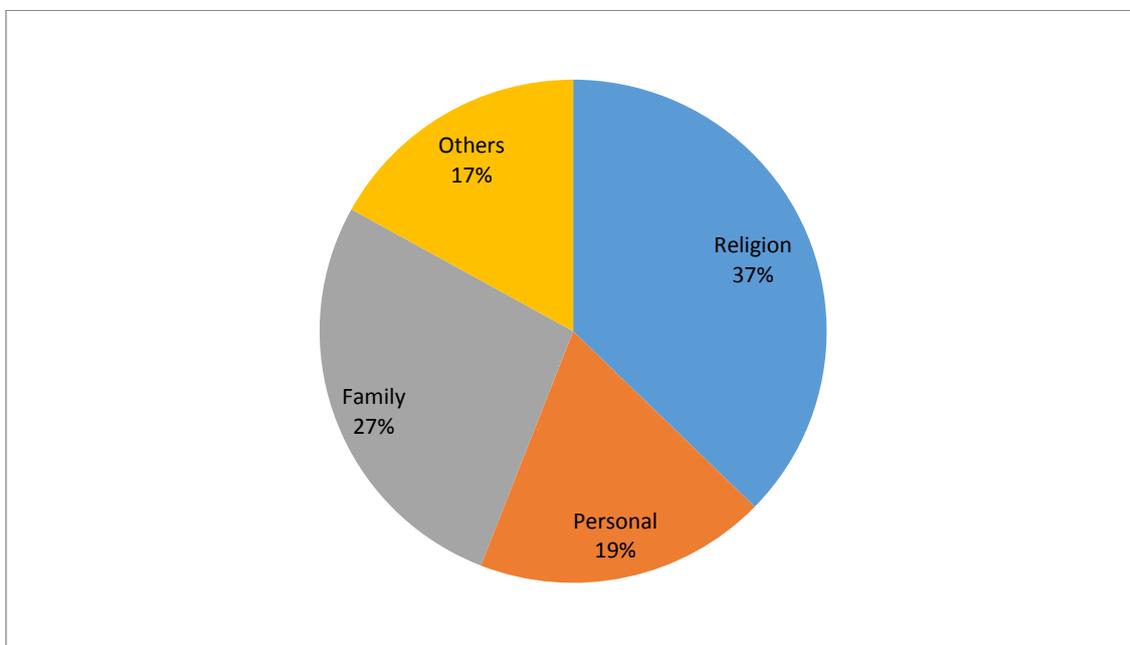
population of the female Anatomist population in Nigeria were unwilling to donate their bodies.



**Fig-3** Comparison of percentage of willing donors among various ethnic groups

Across ethnic groups, the significant populations of respondents were from other ethnic groups in Nigeria apart from Igbo, Hausa and Yoruba ethnic groups. Thus, did not showcase the collective

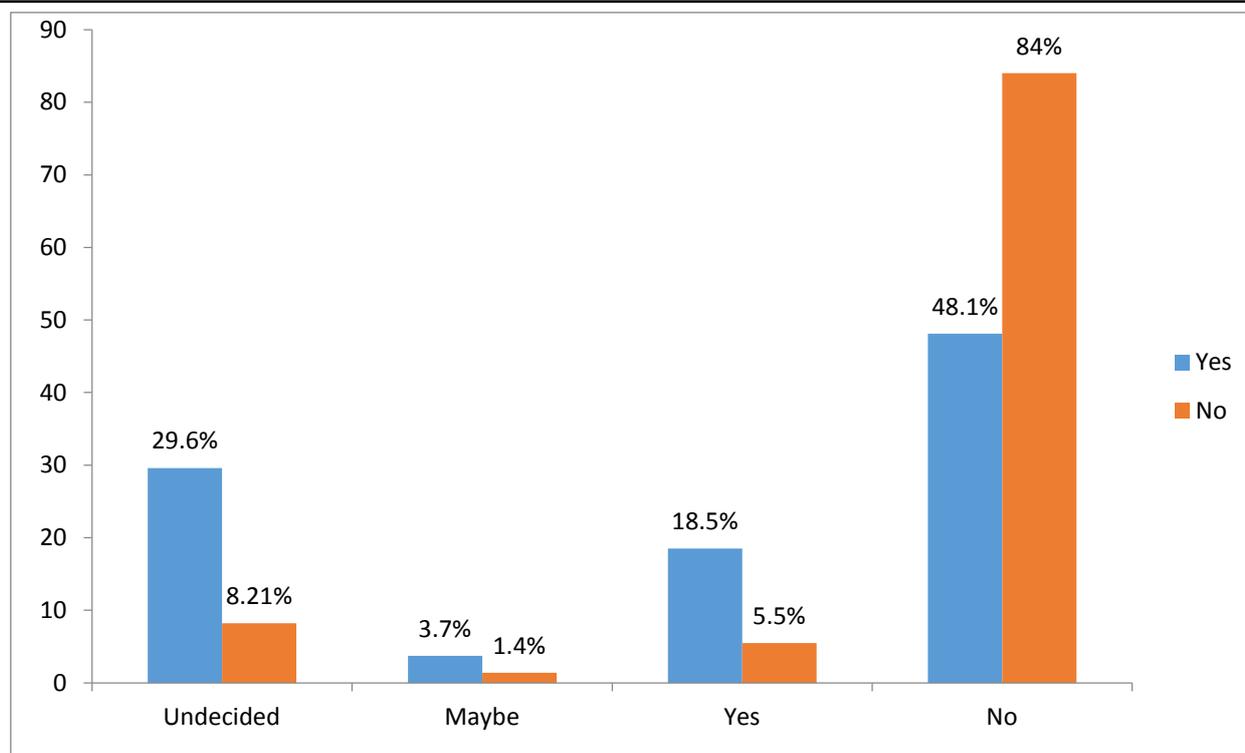
representation amongst ethnic groups. However, the few Anatomists who represented the Igbo ethnic group in Nigeria were most willing to donate their bodies.



**Fig-4** Distribution of causes of Unwillingness among various groups of participants

Data above shows that amongst respondents (Anatomists) who stated reasons for their unwillingness to donate, family disposition and

religion constitute the greatest reasons for respondent’s unwillingness to donate their bodies in Nigeria.



**Fig-5** Distribution of various sources of motivation among various participants (Effect of Incentives on decision of participant)

Data above shows that 29.6% of respondents were undecided if they would be willing to donate their body even with financial incentives, 3.7% may donate their bodies if the incentives are substantial. 18.5% were absolutely willing to donate their bodies only if there is incentives while 48.1% of respondents were not willing to donate their bodies irrespective of the amount of incentives.

### Discussion

The gradual increase of accredited medical schools in Nigeria have raised many challenges, ranging from inadequate number and quality of teachers, pressure to admit more than they can reasonably train, inadequate funds and most pressing inadequate teaching facilities and instructional materials (cadavers for dissection)<sup>[13]</sup>. The need has arising more than ever before to therefore to embrace body donation as source of cadavers acquisition in our universities.

This study was conducted to ascertain the disposition of anatomy first degree holders,

varying levels of postgraduate degree holders and MBBS degree holders with at least an MSc in anatomy towards body donation to enhance psychomotor learning of anatomy in medical schools as well as research institutions.

The Comparatively, higher percentage of willing population among the MSc degree holders(44.4%) and PhD (37%) compared to the other groups MBBS (6.8%), B.Sc (14.8%) and Post Graduate degree holders (3.7%) in Fig 1 of this study, indicates that high level of education can influence an individuals' resolve to donate his/her body for dissection especially for Anatomists. this could be because as teachers of anatomy they understand that despite the trending use of prosected specimens, three-dimensional (3D) models, radiologic pictures, and computer-aided learning as teaching aids,<sup>[8]</sup> (Qamar et al. 2014), cadaveric dissections remains the most valuable assets in teaching anatomy.

In our study the percentage of willing male participants, were higher (77.8%) compared to the willing females participants (22.2%) (Fig 2). This finding was corroborative with the Indian study

of<sup>[14]</sup> this may be related to gender cultural disposition in Nigeria.

Exposure to repeated dissection has been shown not to have a positive influence on the perceptions towards body donation. Most are hindered by ethnic cultural beliefs and religious reasons from participating in the body donation program. In the percentage comparison of willing donors among various ethnic groups (Fig 3), the significant populations of respondents were from other ethnic groups in Nigeria apart from Igbo, Hausa and Yoruba (major ethnic groups) ethnic groups. Thus, did not showcase the collective representation amongst ethnic groups. However, the few Anatomists who represented the Igbo ethnic group in Nigeria were most willing and the Hausas were less willing to donate their bodies.

The non-existence of body donation in Nigeria is not due to lack of active campaigns about the importance of body donation for anatomy teaching as it is already being publicized internationally by the International Federation of Associations of Anatomists (IFAA), and nationally by the Anatomical Society of Nigeria (ASN) and Society of Experimental and Clinical Anatomy Nigeria (SECAN). Data from Fig 4 shows that amongst respondents (Anatomists) who stated reasons for their unwillingness to donate, family disposition and religion constitute the greatest reasons for respondent's unwillingness to donate their bodies in Nigeria. Personal reasons (19%) such as poor handling of the bodies during dissection, having nudity of their remains exposed to the public was also cited as reasons for unwillingness to donate which concurs with the reports in other studies<sup>[15][16]</sup>.

Analyzing the effect of motivation and incentives it was found that 29.6% of respondents were undecided if they would be willing to donate their body even with financial incentives, 3.7% stated that they may donate their bodies if the incentives are substantial, 18.5% were absolutely willing to donate their bodies only if there is incentives while 48.1% of respondents were not willing to donate their bodies irrespective of the amount of

incentives. Therefore, offering incentives for body donation in Nigeria may play very little or no role in improving the disposition of the populace towards body donation even amongst anatomists. This unwillingness amongst professionals/ stakeholders in anatomy to donate their bodies for cadaveric dissection as seen in our study has also been reported in other studies.<sup>[15][16]</sup>

Maitreyee<sup>[17]</sup> compared the distribution of willing participants in several countries and reported the country with lowest percentage of willing donors as Kenya. This poor disposition towards body donation from present study and in Kenya could be contributed to the long use of unclaimed bodies of criminals condemned to death for anatomical dissection in Nigeria and Kenya<sup>[18][19][12]</sup>, the undignified, uncomfortable, brutal, and sad manner of handling cadaver<sup>[20]</sup> hence affecting the disposition and view of the society to cadavers. However the campaign for organ/body donation may still be of essential value in educating members of the public/ religious and other allied groups.

### Conclusion

This study has demonstrated that whereas BSc, MBBS, Post Graduate degree holders expect to learn anatomy by dissection, as a potential donor population, they are reluctant to become donors themselves.

### Recommendation

An educational plan should be formulated and special grant allocated in maintaining anatomy laboratories autonomously. This will ensure that donors are eulogized as heroes of their chosen profession, adequate financial intervention and preservation of bodies in our Nigerian medical schools.

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**Conflict of Interest:** None declared

**Ethical Approval:** Approved

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