



## **Anatomy Education in Nigeria: the Viewpoints of Medical Students**

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### **Abstract :**

**Background:** *Anatomy course is essential in medical training. Adequate knowledge of anatomy is indispensable in diagnosis, interpretation of radiological investigations and safe treatment of patients. There are several debates concerning the methods of teaching anatomy. These arguments involve dissection and its significance, best methods of teaching and learning anatomy, time allocated to teaching anatomy and the nature of anatomy curriculum. The aim of this study is to assess perceptions of medical students on Anatomy, its methods of teaching, learning and assessment.*

**MATERIALS AND METHOD** *Validated self-administered questionnaires were used. A total of 163 students of 200 and 300 levels voluntarily participated.*

**RESULTS** *Majority of the students (more than four-fifth) enjoy anatomy course and they agree that adequate knowledge of anatomy is indispensable in becoming a good doctor (57.1%). Only 28.2% of respondents are willing to consider anatomy as a career. This is an increase to previous reports in Nigeria where only 1.5% among preclinical and 6.2% clinical among clinical students were willing to take a career in anatomy. Overwhelming majority of the respondents believe that dissection sessions are important avenues of teaching and learning anatomy. However, despite the popularity of the internet with students, only 39.9% of the students use it as a tool in learning and understanding anatomy. 93.3% of the respondents agree that the newly introduced mentoring programme in the department is very helpful in their learning and understanding of anatomy.*

**CONCLUSION** *Anatomy still remains an important subject in medical training. Dissection is an important avenue of learning and teaching anatomy.*

**RECOMMENDATIONS:** *There is need to increase students' interest in career in anatomy by providing mentoring programmes in Anatomy departments. Students should be encouraged to embrace new methods of learning anatomy.*

**Keywords-***Anatomy, Education, Medical, Students, Dissection*

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### **I. Introduction**

Anatomy is the foundation of medical training(1). Adequate knowledge of anatomy is indispensable in patient management irrespective of a doctors specialty because it is essential to good and safe medical practice(2)(3)(4). It is vital in accurate diagnosis and in the interpretation of radiological investigations and inadequacy of its

knowledge has been implicated in malpractice and negligence in clinical practice(5).

There have been several debates concerning anatomy education all over the world. Some of the debates on anatomy education are centered on the type of the curriculum, introduction of problem based learning, vertical integration of anatomy throughout medical training and exposure to clinics and patients(2).

Dissection which is considered to be as old as anatomy education itself is not also immune from the arguments. While some students and anatomists believe it is still relevant despite technological advancement and introduction of modern learning and teaching materials, others strongly believe that it is outdated, archaic and should totally be discarded(6)(2). However, with all the debates many countries still rely on dissection as a very important avenue of teaching and learning anatomy(7)(4)(8)

There is debate on the best method of teaching anatomy. Some authors believe modern teaching methods are as effective as the traditional cadaver dissection(6). However, the concept of Problem Based Learning is increasingly being adopted in developed countries. It entails teaching with clinically oriented and problem based lectures, use of modern teaching aids like prosected and pre-dissected specimens and multimedia(7).

Medical schools are increasingly moving towards Problem-Based Learning (PBL) or its modified version. In Nigeria most medical school are still teaching according to the traditional curriculum(5)(9)(10)

An important aspect of medical education is knowing what medical students are being taught and how much of it is retained after graduation(5). There is disagreement between the perceived and actual knowledge of anatomy amongst students(3).

Reports have indicated significant loss in the knowledge of anatomy as the years pass by, with little been retained after medical training and there are concerns that the PBL curriculum might further deteriorate the understanding and retention of anatomy(5)(11). It has also been reported that the PBL method does not allow for adequate understanding of anatomy(3).

There are also claims that there is decline in the knowledge of anatomy amongst nowadays medical students (12)(13). Some of the suggested culprits are absence of an anatomy core curriculum and continuous decrease in time allocated to dissection(12)(14)

The decline in significance given to anatomy course has been observed globally over the last decade with some policy makers arguing that anatomy is filled with unnecessary details and therefore an easy target for frequent cuts. The cut to the anatomy curriculum has been so much that medical students and their lecturers have warned that further cut could lead to production of poorly trained personnel(15).

As more and more medical schools are being established across the country, the need for more anatomy lecturers is imminent. However, there is reported decline in number of anatomy lecturers by some researchers(16)(17)(13). In a study in Nigeria, only 1.5% of preclinical medical students expressed interest in a career in anatomy, while only 6.2% of clinical students indicated interest in taking up anatomy as a career choice(17).

Controversy concerning the best method of teaching anatomy still continues. Students are always at the receiving end of the results and arguments concerning the anatomy curriculum as they are rarely involved or consulted in anatomy curriculum design(18). Therefore, getting the views and opinions concerning anatomy education can help in designing a curriculum that can take into consideration their concerns(19). Researchers have suggested trying various methods of teaching anatomy in the view of the challenges facing anatomy in order to make teaching effective(20). This is another reason why students' views about anatomy should be not only in terms of it's how, but also its what, when and why(3)(21).

There are several literatures on the perception of anatomy education across the world. However, to the best of our knowledge, there is paucity of literature in Nigeria on the subject matter(6). Therefore, the need for this research.

The aim of this study is to assess perceptions of medical students on Anatomy, its methods of teaching, learning and assessment.

## II. Materials and Methods

### 2.1 Setting

This study was conducted in the department of Human Anatomy, Usmanu Danfodiyo University, Sokoto, Nigeria.

### 2.2 Ethical approval

Although non-patient related research was exempted from ethical review by the University, we obtained written informed consent from all the participants.

### 2.3 Subjects

This cross-sectional descriptive study included students from 200 level (2<sup>nd</sup> year) and 300 level (3<sup>rd</sup> year) medical students during the 2016/2017 academic session.

### 2.4 Data collection

Data were collected using a self-administered questionnaire which was validated and inspired from literature available as evidence based medical education research. The designed questionnaire was first pilot tested. Participation was voluntary and anonymous and written consent was obtained before enrollment into the study. The questionnaire had five sections: socio-demographic information, perception of anatomy course, perception of methods of teaching anatomy, perception of methods of learning anatomy and perception of assessment methods. In the second to the fifth sections, students were supposed to tick YES, NO or UNDECIDED. Objective of the study was fully explained to the participants.

### 2.5 Data analysis

Data were analyzed using SPSS statistical software version 20 (Chicago, IL, USA). Descriptive statistics like means and frequencies were used to analyze the variables.

## III. Results

Out of a total of 230 students, 163 completed the questionnaires. This makes an overall response rate of 70.9%. The 163 students enrolled consisted of 120 (73.6%) males and 43 (26.4%) females.

**Table 1: Socio-Demographic Characteristics of Students**

Characteristic	Number	Percentage (%)
Level of Study	200	61.3
	300	38.7
Sex	Male	73.6
	Female	26.4
Religion	Islam	89.6
	Christianity	10.4
Tribe	Hausa	65.0
	Fulani	12.9
	Igbo	0.6
	Yoruba	8.0
	Other	13.5
Marital Status	Single	96.3
	Married	3.7
Father's/male guardians occupation	Civil servant	50.3
	Business man/ self employed	42.3
	Medical	5.5

Mother's/female guardian's occupation	doctor/clinician		
	No response	3	1.8
	Civil servant	43	26.4
	Business woman/ self employed	102	62.6
	Medical doctor/clinician	8	4.9
	No response	10	6.1

**Table 2: Perception of Anatomy Course**

S/NO	QUESTIONS	YES	NO	UNDECIDED
1.	Do you enjoy anatomy course?	136 (83.4)	21 (12.9)	6 (3.7)
2.	Is anatomy your favourite course amongst all the basic medical sciences courses?	59 (36.2)	86 (52.8)	18 (11.0)
3.	Is anatomy boring and uninteresting?	40 (24.5)	114 (69.9)	9 (5.5)
4.	Is anatomy course too bulky?	141 (86.5)	21 (12.9)	1 (0.6)
5.	Is anatomy filled with unnecessary details?	35 (21.5)	117 (71.8)	11 (6.7)
6.	Do you think adequate knowledge of anatomy is indispensable in becoming a good doctor?	93 (57.1)	64 (39.3)	6 (3.7)
7.	Are you going to consider anatomy as a career option?	46 (28.2)	98 (60.1)	19 (11.7)

**Table 2** presented that Majority of the students enjoy anatomy course (83.4%). Only 28.2% of the students are willing to consider anatomy as career option.

Majority of the students enjoy anatomy course (83.4%). Only 28.2% of the students are willing to consider anatomy as career option. Overwhelming majority of the students agree that dissection sessions are important avenues of teaching anatomy (91.4%). Students' opinions were divided equally on whether or not more time should be allocated to undergraduate anatomy course (48.5%). However, 51.5% of the students suggest reducing the undergraduate anatomy curriculum. A significant number of the students do not use the internet as a tool in learning anatomy (60.1%). Majority of the students prefer taking assessments immediately after each region has been taught (95.1%) and they prefer the assessments to be a combination of essays, multiple choice questions and practical (68.7%).

**Table 3: Perception of Methods of Teaching Anatomy**

S/NO	QUESTIONS	YES	NO	UNDECIDED
1.	Dissection sessions are not important as avenue of teaching anatomy?	9 (5.5)	149 (91.4)	5 (3.1)
2.	Do you prefer the class lecture notes over reading textbooks?	93 (57.1)	68 (41.7)	2 (1.2)
3.	Do you prefer power point presentations over white board drawings	58 (35.6)	100 (61.3)	5 (3.1)
4.	Do you prefer projected specimens over cadaver dissection?	50	106	7 (4.3)

		(30.7)	(65)	
5.	Should more time be allocated to undergraduate anatomy course?	79 (48.5)	79 (48.5)	5 (3.1)
6.	Is embryology the most difficult part of the anatomy course?	53 (32.5)	107 (65.6)	3 (1.8)
7.	Do you suggest reducing the undergraduate anatomy curriculum?	84 (51.5)	74 (45.4)	5 (3.1)

Table 3 revealed that majority of the students agree that dissection sessions are important avenues of teaching anatomy (91.4%). Students' opinions were divided equally on whether or not more time should be allocated to undergraduate anatomy course (48.5%). However, 51.5% of the students suggest reducing the undergraduate anatomy curriculum.

**Table 4: Perception of Methods of Learning Anatomy**

S/NO	QUESTIONS	YES	NO	UNDECIDED
1.	Is anatomy best learnt in the dissection hall?	104 (63.8)	46 (28.2)	13 (8.0)
2.	Is anatomy best learnt via textbooks and atlases?	114 (69.9)	45 (27.6)	4 (2.5)
3.	Do you use the internet as tool in learning anatomy?	64 (39.3)	98 (60.1)	1 (0.6)
4.	Do you think learning anatomy requires a lot of hard work?	155 (95.1)	8 (4.9)	0 (0)
5.	Do think anatomy can be learnt without repetition?	7 (4.3)	154 (94.5)	2 (1.2)
6.	Do you think the newly introduced mentoring program will improve students' performance and retention of anatomy knowledge?	152 (93.3)	5 (3.1)	6 (3.7)

Table 4 showed that A significant number of the students do not use the internet as a tool in learning anatomy (60.1%).

**Table 5: Perception of Assessment Methods**

S/NO	QUESTIONS	YES	NO	UNDECIDED
1.	Should the current method of assessment after each region be maintained?	155 (95.1)	7 (4.3)	1 (0.6)
2.	Should assessment be conducted only after the anatomy course for that level have been covered?	20 (12.3)	141 (86.5)	2 (1.2)
3.	Should continuous assessment questions be essays alone?	18 (11.0)	144 (88.3)	1 (0.6)
4.	Should continuous assessment questions be MCQs alone?	71 (43.6)	87 (53.4)	5 (3.1)
5.	Should the continuous assessment be in the practical format only?	25 (15.3)	131 (80.4)	7 (4.3)
6.	Should the continuous assessment be a combination of essays, MCQs and practical?	112 (68.7)	42 (25.8)	9 (5.5)

Table 5 showed that Majority of the students prefer taking assessments immediately after each region has been taught (95.1%) and they prefer the assessments to be a combination of essays, multiple choice questions and practical (68.7%).

#### IV. Discussion

Assessing students' views about anatomy education has proven to be important in the design of anatomy curriculum both for the traditional and Problem-Based-Learning curricular(5).

In the present study, we found that 83.4% of the students enjoyed anatomy course. This is similar to the report by Onakpoya et al, in which they found that 84.1% of students enjoyed preclinical anatomy course(17). However, only 36.9% consider anatomy to be their favorite amongst all the basic science courses. This is in agreement with findings of Karau et al, 2014. Even with anatomy not being their favorite subject, 69.9% of the students think anatomy is interesting. This is in contrast to the finding in a study in the Netherlands where students considered anatomy to be boring (3).

Majority of respondents, over four fifth (86.5%) believe anatomy is too bulky. However, 71.8% of them do not believe it is filled with unnecessary details. This is at variance with the findings of Bergman et al who reported that anatomy is boring and filled with too much knowledge that require memorization and did not permit understanding(3). Since majority of the students consider anatomy to be bulky, expectedly more than half (51.5%) of them have suggested reducing the undergraduate anatomy curriculum.

More than half (57.1%) of the respondents agree that anatomy is indispensable in becoming a good doctor. This is in agreement with several reports that adequate knowledge of anatomy is essential in diagnosis and proper patient management(5)(22)(23)(24).

Only 28.2% of the students will consider anatomy as career. This is a significant improvement to earlier reports from Nigeria. In one study, none of the students indicated any interest in pursuing a career in anatomy(25), while in other studies, it was observed that only 1.5% and 6.2% of preclinical and clinical students respectively were willing to take up a career in anatomy(17). The observed improvement might be due to the newly introduced mentoring system in the anatomy department. In this system, students are divided into smaller groups and a lecturer is assigned to each group. The groups organize tutorials and discussions and by so doing help the students in understanding anatomy. In addition, they also discuss prospects and opportunities available in anatomy as a career. The finding of this study is in contrast to the findings of Choudhary et al who reported that 50.33% of students would like to take up anatomy as a career if better research facilities and job opportunities are made available while 41% would like to be an anatomist if modified integrated curriculum with other clinical specialties is introduced(4)

In concordance with many previous reports, 91.4% of the participants in this study agree that dissection sessions are important as avenue of teaching anatomy. Similarly, 65% of the students prefer dissection over prosected specimens. More so, majority of the students (63.8%) think that anatomy is best learnt in the dissection hall. Anandhi et al also reported more than half of students preferred dissection as a means of learning anatomy to modern methods of teaching. Several other reports have suggested that students prefer dissection over Problem-Based Learning and Computer Assisted Learning(7). In another study, students narrated that dissection was useful in learning anatomy and that it also helps them in understanding the clinical aspect of the PBL themes(26).

57.1% of the students prefer class lecture notes over reading textbooks. This agrees with a similar study in India where 48.83% preferred lecture notes over textbooks(19).

We found that 61.3% of the students preferred white board drawings over power point presentations. This totally agrees with findings of Jaiswal et al in which 2/3 of students chose chalk and board method over modern methods. However, this is at variance with the findings in another Indian study where students preferred power point over the traditional chalk and board method(27). The findings of this study is similar to that of Owolabi et al who reported that overwhelming majority of students prefer classroom lectures and gross dissection over video lectures and simulations (1). The result of this study is also in contrast to those of Ali et al where cadaveric dissection was the most favoured method (62.3%), followed by tutorials (57.5%), lectures (45.8%) and multimedia (41.7%), with PBL and prosection both being favoured the least at 34.8% (28)



The students' views were equally divided over whether or not more time should be allocated to the anatomy course (48.5%). This finding disagrees with that of a study in which Iranian anatomists suggested allocating more time for anatomy mainly due to its bulkiness and methods of teaching(9).

In this study, (65.6%) of the respondents do not think Embryology is the most difficult part of anatomy. However in some studies it has been reported that students find difficulties with Embryology which is said to be due to inability to understand the developmental progression and lack of sequence in taking the lectures(19). With advancements in technology it is surprising that only 39.9% of the students use internet as a learning tool. This may be due to high cost of internet and few numbers of students who can afford the required electronic devices. It could also be due to sheer lack of awareness. This finding is in contrast to that of Barry et al who reported that 70% of students have used the internet as a study tool in their anatomy education(29). In partial agreement to the findings in this research, anatomists have been observed to succeed in modifying their approaches to accommodate recent realities, for example online learning as a result of COVID-19 pandemic, nevertheless, teachers and students still prefer face-to-face and hands-on activities(8)

Majority of the students believe that learning anatomy require both hard work (95.1%) and repetition (94.5%). To face these challenges medical students have always sought for help from their teachers(3). To help medical students improve their performance and retention of anatomy knowledge, the department of anatomy introduced the mentoring program and majority of the students (93.3%) agree that it is indeed serving the purpose. Several reports have suggested various types and time for continuous assessment in anatomy course(19)(21). In this study, almost all the students (95.1%) agree that the current method of assessment after each region be maintained. It entails taking the assessments immediately after covering each region. The current assessment is a combination of Essays, Multiple Choice Questions and practical. This is in disagreement to the findings of Ali et al in which Seventy-two per cent of students agreed that the Objective Structured Clinical Examination(OSCE) style 'spotter' exam was the optimal form of examination while coursework was the least popular assessment method(28)

## V. Conclusion

This study shows that anatomy still remains an essential course in medical education and it is indispensable in training of good and competent doctors. There is need for more studies of this kind and policy makers should look into the Nigerian anatomy curriculum with the view of reviewing the time allocated to it and the possible introduction of some modern methods of teaching. This study reveals that dissection is a very important tool in anatomy education. However, there is need to encourage students to embrace the internet as an adjunct in their learning of anatomy. With the establishment of more medical schools in the country and shortage of anatomy teachers, there is need to increase students' interest in taking up career in anatomy. The present study found that introduction of a mentoring programme increases both students' performance and interest in anatomy as a career.

## References

- [1.] Owolabi JO, Fabiyi SO, Ogunbiyi OE, Favour O. Anatomy Education in Nigeria : An Empirical Study of Students ' Knowledge and Perceptions on Training and Prospects Towards Meeting the Country ' s Need Anatomy Education in Nigeria : An Empirical Study of Students ' Knowledge and Perceptions on Training . 2022;
- [2.] Cho MJ, Hwang YI. Students' perception of anatomy education at a Korean medical college with respect to time and contents. *Anat Cell Biol* [Internet]. 2013;46(2):157–62. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3713280&tool=pmcentrez&rendertype=abstract>
- [3.] Bergman EM, de Bruin ABH, Herrler A, Verheijen IWH, Scherpbier AJJA, van der Vleuten CP. Students' perceptions of anatomy across the undergraduate problem-based learning medical curriculum: a phenomenographical study. *BMC Med Educ* [Internet]. 2013;13:152. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24252155> <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3713280&tool=pmcentrez&rendertype=abstract>

- gi?artid=PMC4225514
- [4.] Choudhary U. Attitude of MBBS Students Towards Cadaveric Dissection and their Views on Anatomy as a Subject for Career Option in Uttar Pradesh Attitude of MBBS Students Towards Cadaveric Dissection and their Views on Anatomy as a Subject for Career Option in Uttar Pra. 2022;(January 2021).
- [5.] Nabil N, AlMously N, AlWathnani S, Abduldaiem A, AlIssa H. Medical students perception on anatomy knowledge relevance and retention during clerkship. *J Contemp Med Educ [Internet]*. 2014;2(3):147–51. Available from: <http://www.scopemed.org/?mno=156493>
- [6.] Karau PB, Wamachi A, Ndede K, Mwamisi J, Ndege P. PERCEPTION TO CADAVER DISSECTION AND VIEWS ON ANATOMY AS A SUBJECT BETWEEN TWO PIONEER COHORTS IN A KENYAN MEDICAL SCHOOL. *Anat J Africa*. 2014;3(2):318–23.
- [7.] Anandhi PG, Alagavenkatesan VN, Yadav V, Shanmugam. Is Anatomy Dissection still relevant in this digital age? - The perceptions of first year medical students: A cross sectional study. *Int Arch Integr Med [Internet]*. 2016;3(7):260–6. Available from: <http://search.ebscohost.com/login.aspx?direct=true%7B&%7Ddb=a9h%7B&%7DAN=116912783%7B&%7Dsite=ehost-live>
- [8.] Papa V, Varotto E, Galli M, Vaccarezza M, Galassi FM. One year of anatomy teaching and learning in the outbreak : Has the Covid- 19 pandemic marked the end of a century- - old practice ? A systematic review. 2022;(December 2021):261–80.
- [9.] Hassanzadeh G, Hassanpoor N, Jalali A, Hassanzadeh N, Jafari M, Panahi N. Teaching Anatomy : Viewpoints of Iranian Anatomists. *Thrita J Med Sci*. 2012;1(2):62–6.
- [10.] Khan J, Baatjes KJ, Layman- JI, Correia LJ. Online anatomy education during the Covid- 19 pandemic : Opinions of medical , speech therapy , and BSc Anatomy students. 2023;(March):892–906.
- [11.] Potu BK, Shwe WH, Jagadeesan S, Aung T, Cheng PS. Scope of Anatomy Teaching in Problem-based Learning (PBL) Sessions of Integrated Medical Curriculum. *Int J Morphol*. 2013;31(3):899–901.
- [12.] Bergman EM, van der Vleuten CPM, Scherpbier AJJA. Why don't they know enough about anatomy? A narrative review. *Med Teach*. 2011;33(5):403–9.
- [13.] Cottam WW. DPA 139. *Clin Anat*. 1999;12(1):55–65.
- [14.] Chia T, Oyeniran OI. Anatomy education in Nigeria : Challenges and prospects. 2019;9(3):61–5.
- [15.] Bohl MA, Gest TR. Resident perceptions of anatomy education: A survey of medical school alumni from two different anatomy curricula and multiple medical specialties. *Anat Sci Educ*. 2011;4(3):126–31.
- [16.] McCuskey RS, Carmichael SW, Kirch DG. The importance of anatomy in health professions education and the shortage of qualified educators. *Acad Med*. 2005;80(4):349–51.
- [17.] Onakpoya OH, Onakpoya UU, Adereti GE. The prospect of anatomy as a career choice among clinical year medical students in Nigeria. *Ann Afr Med [Internet]*. 2009;8(2):90–4. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/19805938>
- [18.] RICHARDSON IM. Consumer views on the medical curriculum: a retrospective study of Aberdeen graduates. Vol. 17, *Medical Education*. 1983. p. 8–10.
- [19.] Jaiswal R, Sathe S, Gajbhiye V, Sathe R. Students Perception on Methods of Anatomy Teaching and Assessment. *Int J Anat Res [Internet]*. 2015;3(2):1103–8. Available from: <http://www.ijmhr.org/ijar.3.2/IJAR.2015.161.html>
- [20.] Mutalik M, Belsare S. Methods to learn human anatomy : perceptions of medical students in paraclinical and clinical phases regarding cadaver dissection and other learning methods. *Int J Res Med Sci*. 2016;4(7):2536–41.
- [21.] Schoeman S, Chandratilake M. The Anatomy Competence Score-A new marker for anatomical ability. *Anat Sci Educ*. 2012;5(1):33–40.
- [22.] Arraez-Aybar LA, Sanchez-Montesinos I, Mirapeix RM, Mompeo-Corredera B, Sanudo-Tejero JR. Relevance of human anatomy in daily clinical practice. *Ann Anat [Internet]*. 2010;192(6):341–8. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/20591641>
- [23.] Moxham BJ, Shaw H, Crowson R, Plaisant O. The future of clinical anatomy. *Eur J Anat [Internet]*. 2011;15(1):29–46. Available from: <http://www.eurjanat.com/web/paper.php?id=110002bm>
- [24.] Gaikwad RB, Waghmare VKR, Gaikwad NB. Physiology as a subject and career option in a view of



- medical students. 2011;2(4):269–71.
- [25.] Ossai EN, Uwakwe KA, Anyanwagu UC, Ibiok NC, Azuogu BN, Ekeke N. Specialty preferences among final year medical students in medical schools of southeast Nigeria: need for career guidance. *BMC Med Educ.* 2016;16:1.
- [26.] Wyk V, O RC. Learning Anatomy Through Dissection: Perceptions of a Diverse Medical Student Cohort  
Aprendizaje de la Anatomía a Través de Disección: Percepción de una Amplia Cohorte de Estudiantes de Medicina. *Int J Morphol.* 2015;33(1):89–95.
- [27.] Nagar SK, Malukar O, Kubavat D, Prajapati V, Ganatra D, Rathwa A. Students' Perception on Anatomy Teaching Methodologies. *Natl J Med Res.* 2:111–2.
- [28.] Registrar O. The perception of anatomy teaching among UK medical students. 2015;397–400.
- [29.] Barry DS, Marzouk F, Chulak-Oglu K, Bennett D, Tierney P, O'Keeffe GW. Anatomy education for the YouTube generation. *Anat Sci Educ.* 2016;9(1):90–6.