

Original Article

Perceptions Of Medical Students Regarding The Anatomy Curriculum And Its Relevance To Clinical Activities

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Abstract

Knowledge of anatomy is crucial for safe and efficient clinical practice. Therefore, it is important to have a structured curriculum and teaching methodologies for efficient learning by the students. In this context, curriculum should be reformed based on students' feedback and expert opinions. This descriptive cross-sectional study was to assess the perceptions of medical students regarding the anatomy curriculum and its relevance to clinical activities based on the feedback of gross anatomy teaching from medical students of para clinical and clinical studies. A Self-administered questionnaire was used to collect data from 319 students. Nearly 65 – 71 % of the students have mentioned that the time allocated to learn anatomy is sufficient for them. Nearly 86 % of the students have commented to have case-based learning to improve the clinical relevance of anatomy. Regarding the assessment, 75 % of students said to include more case scenarios in essay.

Results of our study demonstrated that anatomy syllabus is adequate to integrate with clinical practice and the time allocated to learn anatomy is sufficient.

Key words

Curriculum, Learning Anatomy, students' perception, clinical relevance


Introduction

Knowledge of anatomy is crucial for safe and efficient clinical practice. Anatomy is considered as the cornerstone of medical education. However, an important question in medical education is what the students are learning and to which extent the information is retained in their memory and used in clinical activities. In response to this, medical faculties modify their curricula time to time and teaching methodologies are undergoing continuous alteration. Anatomy curriculum also evolves from a basic science-

oriented approach towards more clinically oriented and applied teaching-learning activities. Studies have reported that medical students perceive that the preclinical subjects are 'peripheral' to their medical profession and irrelevant to their clinical activities. In this context, it is often debated whether the anatomy curriculum fulfils the criteria required for ever changing diagnostic and treatment modalities.

At the Faculty of Medicine, University of Jaffna, Medical students usually spend at least 1 and a half years in learning preclinical subjects. Study of anatomy starts from single cell to multicellular organism and is taught region wise in phase I of the curriculum. Phase I includes 4 terms, each of 10 weeks duration. Current modes of delivery of anatomy in the faculty includes; lectures, classic dissection approach in which students dedicate time toward the dissection of a cadaver and understanding of the structures, prosection, in which students are able to view a previously dissected specimens and learn, small group discussions, case scenario based tutorials, plastic models, x-rays, pictures of clinical cases related to anatomy and applied anatomy classes. Summary of hours allocated are general anatomy – 5 hours, gross anatomy- 69 hours, applied anatomy – 34 hours, dissection / learn through prosected specimen – 134 hours, small group discussion – 48 hours, radiology – 7 hours and case scenario based tutorials – 41 hours. Even though it is an interesting subject, some students perceive that it is a difficult subject mainly due to the terminologies, derived from Greek and Latin and medical languages

The knowledge of anatomy is correlated with living subjects in diagnostic reasoning in most specialties and in conducting surgeries and in interpreting radiographs. Therefore, sufficient knowledge of anatomy is crucial for safe and efficient clinical practice. It has been suggested that anatomy education should focus more closely on a subset of the most clinically relevant topics that will enable medical students to develop a deeper

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understanding of the anatomical basis of diseases and case-oriented problem-solving skills.

Though the medical students learn human anatomy during their preclinical phase, application of the knowledge starts when they enter the paraclinical and clinical phases. It is not known whether the anatomy knowledge gained in the preclinical phase is carried through to the next phase and the extent to which students are able to apply this knowledge to their clinical practices. Collection and analysis of data relates to current trends in the content and mode of delivery of anatomy curricula is expected to provide an evidence base assessing whether existing curricula provide retention of knowledge and meet the needs of application. To that end, this study was designed to investigate paraclinical and clinical medical students' perception on anatomy taught in our curricula and its relevance to their clinical activities

Methodology

Setting

The study was conducted at Faculty of Medicine, University of Jaffna, Sri Lanka. This descriptive cross-sectional study was based on the feedback of gross anatomy teaching from medical students of paraclinical and clinical studies (38th, 39th and 40th batches of Medical students) through a questionnaire. Total 319 respondents filled the questionnaire.

Data were analysed using the SPSS statistical software. Ethical approval was obtained from Ethics Review Committee, Faculty of Medicine, University of Jaffna (Ref No J/ERC/21/124/NDR/02)

Results

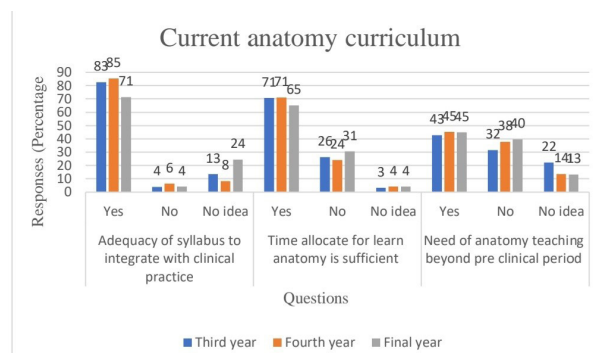
A total of 319 students participated in this study which consist of 114 (35.7%) male students and 205 (64.3%) female students.

Level of clinical orientation of the anatomy curriculum

1. Current anatomy curriculum

Most of the students said that anatomy syllabus was adequate to integrate with clinical activities. 65 - 71 % of the students mentioned that the time allocated to learn anatomy was sufficient for them. Where 45 % of students indicated that the anatomy teaching was needed beyond the preclinical phase (Fig 1).

Figure 1: The anatomy curriculum

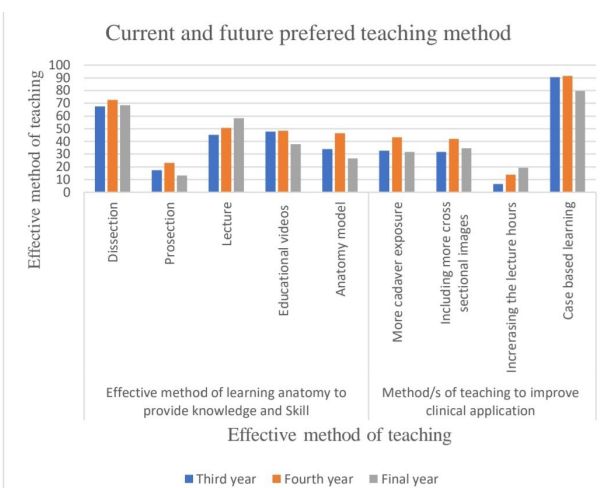


2. Relevant to clinical activities

Response to the question which region of anatomy is more useful to their clinical anatomy, 54 % of the 4th and final year students and 41 % of the 3rd year students have said that upper limb is useful. For the lower limb the responses were 52 %, 48 % and 34 % respectively. Head and neck the responses were 58 %, 65 %, 52 % respectively and for the neuro anatomy 66 %, 59 % and 39 %. Students have said thorax (respective percentages : 66 %, 75 % and 70 % respectively) and abdomen and pelvis (respective percentages : 72 %, 81 % and 89 %) learnt in preclinical were more useful for their clinical learning

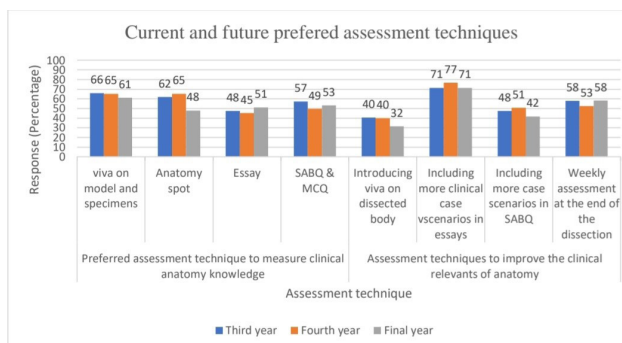
3. Teaching methods

When effective method of learning anatomy is inquired, 7/10 responded it as dissection and ½ of students have mentioned lectures and educational videos. 86 % of the students commented to have case-based learning to improve the clinical relevance of anatomy. 40 % of students suggested to include more cadaveric exposure and cross-sectional images to improve clinical application (Fig 2).



4. Current and future preferred assessment method

There was no preferred method of assessment (viva, spot, MCQ, SBRQ, SEQ) to measure the clinical anatomy knowledge. 75 % said to include more case scenarios in essay and 50 % suggested to have weakly assessment and to include case scenarios in SBRQ to improve the clinical relevance of anatomy (Fig 3)



Medical Students' perception of anatomy knowledge relevance to clinical activity

Nearly 90 % of students said anatomy knowledge helped them to understand clinical manifestation of disease. 80 % said cadaveric dissection provided a better understanding of clinical examination. 90 % said that they were able to identify the structure / organ by the knowledge of surface anatomy. 80 % indicated that anatomy knowledge helped them while performing ward procedures like catheterization, venipuncture, passing nasogastric tube etc. 75 % of 3rd year students and 85 – 89 % of 4th and final year student have mentioned that anatomy learnt in preclinical helped them to interpret radiological images. More than 75 % of responses indicated that knowledge of anatomy helped them while assisting the surgeon during surgery and to understand the link between anatomy education and postgraduate clinical education and practice in the future. Anatomy education has improved their analytical and critical thinking in clinical practice and has helped to work as team and has improved their communication skill and professional skills/

Discussion

A study done among medical students, clinicians and educators in Ireland by Sbayeh et al (1) pointed out that most of the participants were satisfied with the time allocated to learn anatomy in their curriculum. In our

study, 65 - 71% of the participants revealed that the time allocated to learn anatomy is sufficient.

Nearly 79% of the participants in our study agreed that anatomy syllabus is adequate to integrate with clinical practice. This record is lower than the study conducted among students at the University of California Los Angeles in which, 99% of the participants agreed adequacy of syllabus to integrate with clinical practice (2).

In our study, 69% of the students revealed that dissection was the current effective method of learning anatomy to provide knowledge and skills. But, in a study performed at a medical faculty in Puducherry, India, 76.7% of the medical students strongly agreed that cadaver contact is crucial for better understanding of the human body (3).

A Study was conducted in Chennai, India at which 80% of the participants believed that cadaveric teaching method might improve the clinical practice more than other methods (4). In our study, 86% of the participants agreed case-based learning method may improve clinical application more than other methods.

Nearly 83% of the participants in our study agreed that anatomy education has helped them to understand and interpret radiological imaging and scans. This record is higher than the study conducted at a medical faculty in Puducherry, India at which 56.7% of the medical students agreed that anatomy education has helped them to understand diagnostic imaging (4).

In the study conducted among students at the University of California Los Angeles, 65% of the students stated that anatomy helps for developing physical examination skills. But in our study 80% of the students agreed that cadaver dissections provided a better understanding of clinical examination (2).

Nibal et al conducted a study at Faculty of Medicine, King Fahad Medical city hospitals among 4th and 5th year students (5). They stated that 60% of students agreed that their anatomy knowledge faded by the time they reach clerkship, but in our study more than 80% mentioned that their anatomy knowledge helped them for their perception of clinical clerkship and 90% mentioned case based learning improved their clinical

application. This reflects the importance of case based learning in acquiring anatomical knowledge for clinical application.

In a study conducted in MIMER medical college, Pune, India, Maitreyee and Belsare stated that 68% students stressed the need for increasing the importance of radiological anatomy while in our study more than 75% students mentioned they could interpret radiological images with the knowledge gained from anatomy. Based on this, inclusion of radiological based anatomy is important as now a days various radiological images are used to identify and diagnose disease conditions (6).

Conclusion

Results of our study demonstrated that anatomy syllabus is adequate to integrate with clinical practice and the time allocated to learn anatomy is sufficient. It also demonstrated that dissection is the current effective method of learning anatomy to provide knowledge and skills and case based learning helps in acquiring anatomical knowledge based on clinical application.

We believe these findings may help us to construct a curriculum for the better integration of anatomical knowledge to students based on clinical activities.

Furthermore we recommend to get feedback from the para clinical batch students after reforming the curriculum to ensure the importance of cadaveric teaching and case based learning in acquiring anatomical knowledge based on clinical activity.

References

1. Sbayeh A, Qaedi Choo MA, Quane KA et al. Relevance of anatomy to medical education and clinical practice: perspectives of medical students, clinicians, and educators. *Perspect Med Educ* 2016; 5 : 338 - 46
2. Guzman CR, Young S, Rabedeaux P et al. *Journal of Medical Education and Curriculum Development*. 2015; 2 : 21 - 5
3. Priyadharshini NA, Dinesh Kumar V, Rajprasath R and Rema Devi. Relevance of learning anatomy to clinical practice: Perceptive of medical students, interns, and clinicians *National journal of clinical anatomy*. 2019; 8 (1) : 32 - 7
4. Swetha G and Premavathy D. Assessing the application of anatomical knowledge in clinical practice *Drug invention today*. 2020; 13 (7) ; 1043 - 46
5. Nabil NM, Mously N Al, AlWathnani S et al. Medical students' perception on anatomy knowledge relevance and retention during clerkship. *Contemp Med Edu*. 2014; 2 (3) : 147 – 151 DOI: 10.5455/jcme.20140928035119 www.scopemed.org
6. Maitreyee M and 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):2536-2541