

## Study of Anatomy as a Career

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### Abstract

Anatomy is being taught in medical schools at the preliminary level in order to build background knowledge for future practice. It is the need of the hour to endorse teaching of anatomy by qualified medical staff and thus encourage post graduation in anatomy. Today in India there are 335 medical colleges with an intake of 40525 students annually. Among these colleges 198 colleges are recognised for a post graduation in Anatomy discipline. In these colleges there are 610 seats for PG Anatomy which makes the ratio of MBBS students to Anatomy PG students 100: 1.5. A study was conducted on 100 medical students at K.J. Somaiya Medical College between July 2014 and Dec 2014. Out of the 100 students 50 were pursuing their MBBS and 50 were pursuing their internship. Out of the 50 students pursuing MBBS, 15 had completed their first year exams, 15 had completed their second year exams, 10 had completed their third year (Part I) exams and 10 had completed their third year (Part II) exams. All the students were randomly selected. *Conclusion:* A postgraduate qualification establishes a student in his career as an academican. But there are few PG anatomy seats in India. The number of post graduate seats should increase.

**Keywords:** Anatomy; Medical Schools; Practice; Post Graduation; Career; Academican.

### Introduction

Anatomy is being taught in medical schools at the preliminary level in order to build background knowledge for future practice. Students make first contact with human biological tissue in the Anatomy department [1]. The seeds of ethical practices and professionalism are sown here. The science of anatomy introduces an aspirant doctor to the language of medicine [2]. Not only is it the foundation of all surgical knowledge but also of all diagnostic and therapeutic branches of medicine as well as of allied health sciences. Adequate anatomical knowledge is essential for surgeons and for anyone who performs an invasive procedure on a patient [3]. Anatomy

knowledge is also central to a complete medical examination, to make a diagnosis and also to properly communicate with colleagues and patients. Thus, an efficient system for instruction of Anatomy assumes immense importance [4]. Cahill (1990) mentions that the study of gross anatomy provides an opportunity to value life and creates empathy for future patients. It teaches the value of human life [5]. Weeks SE et al, (1995) mentions that dissection enhances the skill of logical thinking, thus helping in all aspects of medicine [6]. Therefore, it is in the first year of medical college that an encouraging approach towards Anatomy should be built. Over the last few years, to minimize the factual load on students and to allot time for teaching clinical relevant anatomy and other skills, the curriculum of anatomy has been reduced globally. There is a call to focus on moving from highly in-depth anatomical topics towards functionally and clinically significant topics, irrespective of the method of teaching. Hence most of the medical colleges are reducing the content of in- depth factual anatomy in curriculum, consequently leading also to a reduction in the teaching staff. The number of medically qualified teachers in preclinical subjects is continuously decreasing, Schockley DG, 1986 [7].

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Hence it is the need of the hour to endorse teaching of anatomy by qualified medical staff and thus encourage post graduation in anatomy. There is an imperative need to further augment awareness amongst students regarding available job opportunities and research possibilities in the subject of anatomy as well as further studies in the speciality of Anatomy [8].

Today in India there are 335 medical colleges with an intake of 40525 students annually. Among these colleges 198 colleges are recognised for a post graduation in Anatomy discipline. In these colleges there are 610 seats for PG Anatomy which makes the ratio of MBBS students to Anatomy PG students 100: 1.5. Thus anatomy which is essential for Medical, Dental, Physiotherapy, Occupational Therapy, Nursing as well as for paramedical Sciences is facing an acute shortage of qualified anatomists [9,10].

The present study has been designed to evaluate the knowledge and attitudes of medical students towards Anatomy as a post graduation.

**Material and Methods**

A study was conducted on 100 medical students at K.J. Somaiya Medical College between July 2014 and Dec 2014. Out of the 100 students 50 were pursuing their MBBS and 50 were pursuing their

internship. Out of the 50 students pursuing MBBS, 15 had completed their first year exams, 15 had completed their second year exams, 10 had completed their third year (Part I) exams and 10 had completed their third year (Part II) exams. All the students were randomly selected. After approval from institutional ethical committee, informed consent was taken from each student participating in the study. Adequate explanation was given to the students about the objective and relevance of the study and verbal consent was obtained. A structured questionnaire was prepared and administered to the 100 medical students. The age of the students ranged between 19–22 years. There were 55 males and 45 female students participating in the study. A questionnaire based study was designed to gauge the opinion of medical students regarding anatomy as a subject, and how they relate it to clinical practice, its application in various clinical fields and finally the status of anatomy post graduation as a future career option.

The following important areas were covered in the questionnaire

1. Status of anatomy and its utility.
2. Further studies after MD Anatomy.
3. Career opportunities after MD Anatomy
4. How lucrative is the career in Human Anatomy?
5. Views regarding MSc. in Anatomy.

**Table 1:** Distribution of study sample (n=100)

	Total (100)
First MBBS	15
Second MBBS	15
Third (I) MBBS	10
Third (II) MBBS	10
Internship	50

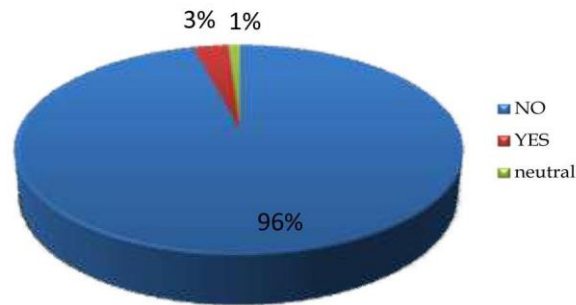
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| <p>Status of anatomy and its utility.</p> <ol style="list-style-type: none"> <li>1. Status of anatomy is a subject in the medical curriculum.</li> <li>2. Every practising doctor needs to have a sound</li> </ol> | <p>knowledge of Anatomy.</p> <ol style="list-style-type: none"> <li>3. It is important to teach clinically oriented anatomy through integrated teaching.</li> <li>4. Status of a post graduation in anatomy within the medical field</li> </ol> |
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**Table 2:** Perception of students regarding status of anatomy and its utility

	Agree (%)	Disagree (%)	Neutral (%)
Anatomy is an important subject in the medical curriculum	94	5	1
Anatomy as a subject is difficult to comprehend and remember	62	25	13
One year duration is enough to study Anatomy along with Physiology and Biochemistry	85	10	5
Every practising doctor needs to have a sound knowledge of Anatomy	88	9	3
Clinically oriented anatomy should be taught through integrated teaching	75	10	15
PG in Anatomy has a low status within the medical field	45	55	-
MD Anatomy is a lucrative career	55	40	5
Would you take up Post graduation in Anatomy	24	48	28

**Table 3:** Awareness of students regarding options after md anatomy

		Aware (%)
Career Options	Lecturer	99
	Research Oriented Jobs	42
	Health Care Management	25
	Medical Genetics	36
Further Studies	MSc. IN EMBRYOLOGY	0
	PhD In USA	5

**Should MSc Anatomy Postgraduates Be Allowed To Teach Medical Undergraduates****Fig. 1:** Perception of students regarding MSc. in anatomy*Further Studies after MD Anatomy*

1. PHD in USA where they can specialize in areas such as biological imaging, cell biology, genetics, molecular development, endocrinology, histology, neuro-science, forensics, microscopy, and physical anthropology.

2. MSc. in Embryology from UK.

## Career opportunities after MD Anatomy

1. Lecturer in a medical college or dental college.
2. Research oriented jobs.
3. Healthcare management
4. Medical genetics.

**Discussion**

Anatomists are biological scientists who study the structure of living things. Most anatomists are biomedical researchers and educators centering on human anatomical form and function. They usually teach and do research. They help train scientists, as well as physicians, dentists, nurses, pharmacists, and other workers in the health field [11,12]. There is a shortage of anatomy teachers in medical colleges at a global level. Whenever a new medical college comes up there is a requirement for anatomists.

Wherever there is a dearth of anatomy teachers, teaching of anatomy is taken up by either surgeons like in USA or by fresh medical graduates as in UK [13,14].

Our studies show that 94% of medical students are aware of the importance of anatomy as a subject and 88% know very well that every practising doctor needs a sound knowledge of anatomy. 75% felt that clinically oriented anatomy should be taught through integrated teaching. This on par with the findings of Pabst (1993) & Pabst (1994)[15,16]. It has been studied that the inclination towards a particular specialty is determined by complex interacting variables e.g. personality of individuals, Mowbray RM, (1990) & Walton HJ (1969), quality of teaching in medical college, clinical competence, Kelley A et al, (1995), future career aims etc. [17,18,19]. 62% students find anatomy difficult to understand and remember and most of them (85%) felt that one year duration was enough to learn anatomy.

One of the major criteria in selection of a subject as a career is the financial status accorded to it (Anand BK, 1992, Anantraman V et al, 1995, Galazika Sim S et al, 1994 & Koivusilla L et al, 1995) Inadequate financial returns are associated with professions involving pre and para clinical subjects [20,21,22,23]. In a similar study done by Anand MK, only 12% strongly felt that anatomy could be opted for as a career and a further 18% tended to agree to consider this option [24]. A few years ago, anatomy was chosen as a career by very few students. Only graduates with lower ranks in postgraduate entrance tests picked anatomy as a last resort. But now changing trends has been observed among the medical graduates in selecting their career. Better prospects in pre-clinical has attracted the student toward Anatomy Post-graduation [25]. In our study 24% were ready for a

post graduation in anatomy and another 28% agreed to consider it as one of their options. So the situation has improved slightly.

In our studies 55% students felt that MD Anatomy was a lucrative career, but 40% were of the view that being a clinician is more lucrative. The available Anatomy Postgraduate seats are very less, causing major faculty deficit. Moreover large number new Medical colleges are coming up nowadays which has increased the demand for new anatomy faculty [26]. Hence students should take up anatomy as a career option.

MD in Anatomy is a 3 year full time post graduation course. In India, after doing MD Anatomy one can join as lecturer in both medical and dental colleges. They can also teach students of Physiotherapy, Occupational Therapy, Nursing and other allied health sciences, but teaching should be taken up, only if one is enthusiastic about teaching and has a passion for it. With an MD in anatomy one can take up research oriented jobs in medical field. One can even do private practice. One can also find opportunities in healthcare management sector or can work in the field of medical genetics. Some students did not like anatomy as a post graduation as they felt that there would be no patient interaction [27]. If cytogenetic and hormone assay laboratories are attached with the department of anatomy, not only are research opportunities improved but it will also increase patient interaction with anatomists. If a medical college has CT and MRI facilities, then trained anatomists can be called as cross-sectional experts [28]. There are also options for further studies in USA and UK. In US, there is a PhD in anatomy. After PhD in anatomy, one can specialize in areas such as biological imaging, cell biology, genetics, molecular development, endocrinology, histology, neurosciences, forensics, microscopy, and physical anthropology [29,30]. UK (Oxford, Leeds etc) offers MSc. in Embryology. After MSc. in Embryology, one can even come back to India and work in IVF clinics which are expanding rapidly nowadays. Even in India, there are fellowships in embryology and genetics offered by CMC Vellore [31].

One major problem in taking up Anatomy as PG, for academicians is the presence of students with MSc degree, who are given the same opportunities as MD anatomists by MCI [32].

A basic doctor should know the relevant clinical anatomy before he start seeing patients. MSc. people have no idea for what purpose anatomy is taught to MBBS students as they have no clinical exposure. Nowadays with greater emphasis on clinical anatomy, it is a sad fact that in many of the “reputed

institutes” Anatomy department is headed as well as taught by MSc persons. This is detrimental for future doctors. Medical undergraduates should learn clinically relevant anatomy for them to be able to apply it in their professional lives. The demand for MD anatomists will go up only when MCI stops giving permissions to appoint MSc. passed students in medical colleges. MSc people enjoy the luxuries of having studied only 6 yrs that too very little syllabus (only 20% of MD anatomy) and over and above they earn the same salary as MD anatomists in medical colleges. This is completely unfair and frustrating for MD anatomists.

## Conclusion

A postgraduate qualification establishes a student in his career as an academician. But there are few PG anatomy seats in India. The number of post graduate seats should increase. From our study we garner the information that duration of anatomy in the undergraduate curriculum should be increased and emphasis should be given to clinically relevant anatomy. Most of the students are not aware of the career options or options of further studies after PG anatomy but nearly all are aware of only teaching option after MD. Few medical doctors do not find pre-clinical subjects as highly attractive and lucrative, therefore, are deterred to pursue them as career as they are not much into patient treating field. MSc. Anatomy persons should not be allowed to teach medical undergraduates as they do not have clinical exposure. Otherwise anatomy is good and comfortable subject. Finally we believe that a good anatomist should first be a good academician so that he can transmit sufficient knowledge and practical skills to the next generation of learners and bring out the best in them.

### *Competing Interests*

The authors declare that they have no competing interests.

### *Authors' Contributions*

SR drafted the manuscript, performed the literature review & SPS assisted with writing the paper.

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