

Study of Medical Students Views on Anatomy as both an Academic Subject and a Potential Career Path in IndiaUtkarsh Gopal Shrivastav¹, Makandar UK²¹Associate Professor, Department of Anatomy, VIMS, Dahanu, Maharashtra, India²Professor, Department of Anatomy, AL Ameen Medical College, Vijayapur, Karnataka, India

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Abstract:

A survey was conducted among 200 medical students to gather their perspectives on anatomy as both a subject and a potential career path. The students responded to a questionnaire containing 12 statements, and the results were analyzed. The findings were largely positive, with 90 % of students recognizing anatomy as a crucial foundation in medical sciences. A significant majority (84%) believed that a strong understanding of anatomy greatly aided them during their clinical rotations in hospitals. However, more than half of the respondents found anatomy challenging to grasp, and three-quarters agreed that the teaching of anatomy should extend beyond a single academic year. While 31 % of students rated anatomy on par with clinical subjects, only a small number viewed teaching anatomy as favorably as patient care. In India, limited job opportunities and insufficient research facilities have hindered the popularity of anatomy as a career choice. Even with a revised curriculum, only 29% of the students expressed interest in pursuing a career as an anatomist. Nonetheless, most students were open to the idea of enrolling in a formal teaching course if they decided to specialize in anatomy.

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Introduction

A medical career begins with the dissection of human cadavers, an experience that initially causes emotional shock for many students (Abramson S, 1991; Evan R et al., 1992; Finkelstein P et al., 1990). Over time, however, students develop a professional attitude and come to view dissection as a valuable tool for studying the structure of the human body (Yeager VL, 1996). Dissection not only imparts anatomical knowledge but also offers insights into broader aspects of life, as various authors have eloquently described (Cahill DR et al., 1990; Charlton R et al., 1994; Druce M et al., 1994; Horne DJ et al., 1990; Penny JC, 1984).

According to Cahill and Dalley (1990), the study of gross anatomy allows for reflection on the intrinsic values of life and fosters empathy towards future patients. It also teaches the significance of human life (Weeks SE et al., 1995) and enhances logical thinking skills, which are essential in all areas of medicine (Mutyalu, 1996).

Therefore, it is during the first year of medical school that students can develop a positive attitude toward the subject. The choice of a medical specialty is influenced by a complex interplay of factors, including individual personality (Mowbray RM, 1990; Walton HJ, 1969), the quality of

teaching in medical school, clinical competence (Kelley A et al., 1995), and future career goals. Despite its importance, few students currently choose anatomy as a career. It is often observed that graduates with lower ranks in postgraduate entrance exams select anatomy as a last resort.

There is a global shortage of medical educators, particularly in preclinical subjects, with the number of medically qualified teachers in these areas steadily declining (Schockley DG, 1986). This shortage is especially pronounced in the field of anatomy, particularly in India. There is a pressing need to raise awareness among students about the career opportunities and research possibilities available in anatomy.

This study was designed to assess medical students' opinions on anatomy as a subject, its application in various clinical fields, and its viability as a future career option.

Materials and Methods

This study was conducted at vims dahanu, India, involving a random sample of 200 medical students who voluntarily participated. The sample included 150 undergraduates and 50 postgraduates from various specialties. Each participant was briefed on

the study's objectives and then given a questionnaire comprising 12 items. The response options were categorized as: strongly agree, tend to agree, no opinion, and disagree. Anonymity was strictly maintained, with no names or identifying numbers recorded. The collected data were subsequently analyzed. The questionnaire addressed the following key areas:

1. Perception of Anatomy as a Subject (Items 1 and 2)
2. Importance of Anatomy in Clinical Practice (Items 3 and 4)
3. Sufficiency of the Duration Allocated for Anatomy Instruction (Item 5)
4. Viability of Anatomy as a Career Path (Items 6 and 7)
5. Perception of Anatomists' Role and Status within the Medical Field (Items 8, 9, and 10)

Table 1: The Statement and responses to them - Student's view

Item No.	Strongly Agree	Tend to Agree	Neutral	Disagree
1. Anatomy isn't just about studying body structures through dissection; it's a fundamental aspect of medical sciences.	141 71%	38 19%	16 8%	5 2.5%
2. It is difficult to understand and retain anatomy	48 24%	126 63%	6 3%	20 10%
3. I am benefited from knowledge of anatomy later in my clinical terms	116 58%	52 26%	18 9%	14 7%
4. Every good clinician needs to have a sound knowledge of anatomy besides the clinical specialties	120 60%	42 21%	18 9%	10 5%
5. The time allotted for teaching anatomy in the present curriculum is one year and it is not adequate	66 33%	42 21%	52 26%	40 20%
6. I would like to take up anatomy as a career if better research facilities and job opportunities are provided	26 13%	28 14%	80 40%	66 33%
7. I would like to be an anatomist if a modified integrated curriculum with other clinical specialties is introduced	22 11%	36 18%	62 31%	80 40%
8. Graduates with low ranks in the postgraduate entrance examination take up anatomy for further studies	28 14%	76 38%	84 42%	12 6%
9. An anatomist lacks clinical knowledge and thus wastes his time becoming a doctor	22 11%	32 16%	84 42%	62 31%
10. Anatomy as a discipline has a low status within the medical field	16 8%	38 19%	50 25%	96 48%
11. Teaching anatomy to students and making them overcome their difficulties gives as much satisfaction as treating a patient rolling in pain	40 20%	42 21%	46 23%	72 36%
12. I would welcome a formal course in teaching while training to become an anatomist	34 17%	78 39%	66 33%	12 6%

As shown in the table, 90% of respondents regarded anatomy as a foundational pillar of medical science, and 84% believed that a solid understanding of anatomy is essential to becoming a good clinician. Despite 87% acknowledging that anatomy is difficult to master, 84% recognized its value later during clinical postings. A majority (54%) felt that the one-year period currently allotted to learning anatomy was insufficient. When considering anatomy as a career, only 27% of students were inclined to pursue it, while 33% disagreed, and the remaining students were

undecided. The introduction of a modified curriculum led to 29% expressing interest in becoming anatomists, although 40% remained opposed to the idea. About 31% disagreed with the notion that becoming an anatomist was a waste of a medical degree, compared to 11% who agreed. Although 52% believed that students with lower ranks tended to choose anatomy as a career, at least 48% did not view anatomy as having low status within the medical field. Opinions were split regarding professional satisfaction: 41% felt that teaching anatomy was as fulfilling as treating a

patient, 36% disagreed, and 23% had no opinion. Additionally, 56% of students supported the idea of introducing a formal teaching course during the training of anatomists.

Discussion

In India, the medical education curriculum spans five and a half years, with the first year devoted to pre-clinical subjects, including anatomy. However, as students advance in their studies, the focus on anatomy diminishes, receiving little to no attention during the discussion of clinical cases. This decline in emphasis leads to a reduction in anatomy's perceived importance in daily medical practice (Chevrel JP, 1995). Despite this, our study revealed that an overwhelming 90% of students recognized anatomy as a vital foundation of medical sciences. As Monkhouse (1992) observed, anatomy underpins the morphological basis of medicine and provides the essential structural framework for developing clinical reasoning. Our findings further showed that 84% of students believe that a sound knowledge of anatomy is crucial for becoming a competent clinician, and they found this knowledge particularly valuable during their clinical rotations.

Pabst (1993 and 1994) conducted two significant studies using questionnaires distributed to final-year medical students. At his institution, anatomy is taught in the first semester. In the 1993 study, over 60% of students felt that anatomy was adequately taught during this period, with more than 90% expressing interest in reinforcing the subject through lectures during their clinical studies. Additionally, 75% of students indicated a willingness to participate in specialized clinical dissection courses during their clinical training. In the subsequent study, 94% of students rated gross anatomy teaching as "essential." These results align with our study, highlighting the high clinical relevance of anatomy in medical education.

Despite its importance, many medical students find anatomy challenging, with up to 87% considering it a difficult subject. As noted in our results, a majority (54%) agreed that the current one-year period dedicated to teaching anatomy is insufficient. This finding suggests a need to reassess the curriculum and consider extending the time allotted to anatomy instruction.

Non-clinical specialties like anatomy are often chosen by only a small number of medical students (Schumacher CT, 1964). New graduates rarely select anatomy for postgraduate studies (Souif HE, 1992; Tolani B, 1991). Our study reflects this trend, with only 13% of students strongly inclined to pursue a career in anatomy and an additional 14% somewhat open to the idea. The introduction of a modified, integrated curriculum slightly increased interest, with the positive response rising from 30% to 35%. These results indicate that while

students recognize the value of anatomy, few are motivated to pursue it as a career, potentially leading to a future shortage of trained anatomists. Chevrel JP (1995) emphasized that modern teaching techniques cannot replace the expertise of a skilled anatomy teacher. Our study underscores the urgent need for measures to address this issue.

Career choices in the medical field are often influenced by financial considerations (Anand BK, 1992; Anantraman V et al., 1995; Galazika Sim S et al., 1994; Koivusilla L et al., 1995). Pre-clinical and para-clinical specialties, including anatomy, typically offer lower financial rewards. In India, job opportunities and research prospects for anatomists are limited. Although teaching is a primary responsibility for anatomists, requiring them to be readily available to students (Anantraman V et al., 1995), their professional development largely depends on their research contributions. Enhancing research opportunities, such as by incorporating cytogenetic and hormone assay laboratories within anatomy departments, could increase patient interaction and elevate the role of anatomists. Furthermore, with the growing use of CT scans and MRIs, the demand for trained anatomists as cross-sectional anatomy experts is rising.

The limited job opportunities in anatomy often lead qualified anatomists to pursue clinical practice. However, confidence in treating patients tends to decrease over time, exacerbated by a lack of exposure to advanced clinical methods and growing public expectations (Ellis JR, 1994). Nevertheless, our study found that 31% of students disagreed with the perception that anatomists lack the clinical knowledge necessary to be effective doctors. Finally, while a medical doctor specializing in anatomy may possess deep expertise in the field, they may not be naturally skilled in teaching. A formal training course in teaching could significantly enhance their effectiveness, a view supported by 56% of students in our study.

Conclusion

This cross-sectional study was conducted among a group of medical students in Maharashtra, India, to assess their attitudes towards anatomy. The findings revealed a generally positive view of anatomy as a subject, although only a small percentage of students expressed interest in pursuing it as a career. Based on these insights, the following recommendations are proposed:

1. **Extend the Teaching Period:** Consider reverting to the pre-1997 curriculum, which allotted one and a half years for teaching anatomy, allowing for a more thorough understanding of the subject.
2. **Integrate Anatomy with Clinical Training:** Develop an integrated teaching schedule that

aligns anatomy with other subjects throughout the medical curriculum. This would ensure continuity and reinforce anatomical knowledge during clinical rotations in hospitals.

3. **Enhance Research and Job Opportunities:** Provide better research facilities and job prospects for anatomists, with a focus on research that addresses the specific needs of India. Government recognition and support for research contributions are essential to encourage innovation in the field.
4. **Offer Incentives:** Introduce incentives to make anatomy a more attractive career option for students. These could include scholarships, grants, or other forms of recognition that encourage students to specialize in anatomy.
5. **Promote Interdisciplinary Collaboration:** Foster collaboration between anatomists, patients, and other medical departments. This interdisciplinary approach could inspire recent graduates to consider anatomy as a viable and fulfilling career path.
6. **Enhance Teaching Skills:** Implement regular training programs for educators across all medical disciplines, with a particular focus on improving teaching methods in anatomy. These courses would help educators refine their skills and adapt to the evolving needs of medical education.

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