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## Review Paper

# A Systematic Review on Preparing for Medical Entrance Exams: Comparative Study of NEET and Global Educational Practices

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## ARTICLE DETAILS

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## ABSTRACT

Medical entrance examinations serve as critical gateways to medical education worldwide. This review employs a comparative analysis approach to examine the preparation practices for the National Eligibility cum Entrance Test (NEET) in India against those for other major international medical entrance exams. The analysis is based on a comprehensive literature review of academic articles, policy papers and educational resources. The comparative analysis reveals significant differences in preparation practices, resources, and challenges faced by students. Indian students preparing for NEET rely heavily on coaching centres, face high costs, and encounter socio-economic disparities that impact their access to quality education. In contrast, their international counterparts benefit from more integrated educational resources and robust support systems. For example, MCAT preparation in the USA focuses on conceptual understanding and critical thinking, often supplemented by a combination of self-study and formal review courses. Similarly, UMAT in Australia and BMAT in the UK emphasize problem-solving and critical thinking skills, with preparatory resources integrated into the school curriculum and supported by institutional resources. To enhance medical entrance exam preparation in India, recommendations include implementing policies for financial assistance and accessible resources for underprivileged students, shifting from rote learning to conceptual understanding, integrating entrance exam preparation into the school curriculum, and expanding the use of digital tools and online platforms. Addressing these challenges can create a more inclusive and equitable medical education system, promoting diversity and improving healthcare outcomes.

## 1. Introduction

Medical entrance exams are pivotal in determining access to medical education and, consequently, the future healthcare workforce. NEET in India, MCAT in the USA, UMAT in Australia, and BMAT in the UK are among the most significant exams globally. This review aims to analyze and compare the preparation practices for these exams, exploring how different educational systems and cultural contexts influence students' approaches to exam readiness.

## 2. Overview of Medical Entrance Exams:

### 2.1 NEET in India

Introduced as a standardized medical entrance exam, NEET plays a pivotal role in determining admission to medical and dental colleges across India. It was established to streamline the admission process, ensuring a uniform evaluation of candidates nationwide. NEET covers subjects like Physics, Chemistry, and Biology, emphasizing factual recall and problem-

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solving abilities. The exam is known for its highly competitive nature, with millions of students vying for limited seats, making thorough preparation crucial for success. The use of tests based on multiple-choice questions (MCQs) for admission to medical schools has been a subject of contention. (Donnon, T., Paolucci, E. O., & Violato, C. 2007).

### 2.2 MCAT in the USA

The MCAT is a cornerstone of the medical school admission process in the United States. Administered by the Association of American Medical Colleges (AAMC), the MCAT assesses a candidate's problem-solving abilities, critical thinking, and knowledge of natural, behavioral, and social sciences. Unlike NEET, the MCAT focuses less on rote memorization and more on the application of scientific concepts. This exam is a critical component of the holistic review process employed by medical schools in the USA, where academic performance, personal statements, and extracurricular activities are also considered. The MCAT (Medical College Admission Test) has evolved to better reflect the skills and knowledge needed for modern medical education. The inclusion of psychology, sociology, and biochemistry, along with a stronger emphasis on research methods and statistics, aims to ensure that future medical professionals are well-rounded and prepared to understand the social and behavioural aspects of health. (Schwartzstein, Rosenfeld, Hilborn, Oyewole, & Mitchell, 2013; AAMC, 2014).

### 2.3 UMAT/UCAT in Australia

The UMAT, recently replaced by the University Clinical Aptitude Test (UCAT), has been a key requirement for admission to medical and health science programs in Australia and New Zealand. The UCAT consists of four cognitive skills subtests and a Situational Judgement Test designed to assess non-cognitive qualities such as integrity, perspective taking, team involvement, resilience, and adaptability. (University Clinical Aptitude Test, ANZ Consortium, 2024). This test aims to evaluate not only the academic prowess of candidates but also their potential for empathy, communication, and ethical decision-making—skills essential for future healthcare professionals.

### 2.4 BMAT in the UK

The BMAT is an important exam for students aiming to enter medical schools in the UK and other countries. It evaluates scientific knowledge, problem-solving skills, and written communication abilities. The BMAT is distinctive in its combination of assessing aptitude and subject-specific knowledge, offering a comprehensive measure of a candidate's readiness for the demands of medical education. It supports a holistic admission process, where academic achievements and other competencies are equally valued.

### 2.5 Global Significance

These exams are integral to the medical education systems in their respective countries, each reflecting unique educational philosophies and healthcare needs. NEET, MCAT, UCAT, and BMAT not only serve as gateways to medical schools but also shape the future of healthcare by selecting individuals who will become the next generation of medical professionals. Understanding the preparation practices, socio-economic challenges, and cultural contexts surrounding these exams provides valuable insights into improving accessibility, equity, and effectiveness in medical education globally. This paper aims to compare and analyze the preparation strategies for these exams, highlighting the diverse approaches and identifying best practices that can enhance student readiness and success.

## 3. Preparation Strategies

### 1. India (NEET):

- a. *Coaching Centers:* A significant number of students rely on coaching centers, which provide specialized training and rigorous practice sessions. These centers often emphasize extensive practice with past papers and mock tests.
- b. *Self-Study:* Many students also engage in self-study, using a variety of textbooks, online resources, and study guides. Time management and disciplined study schedules are crucial.
- c. *Educational Resources:* NEET preparation materials include textbooks, guides, online courses, and mobile apps tailored to the NEET syllabus.

### 2. USA (MCAT):

- a. *Commercial Prep Courses:* Companies like Kaplan and The Princeton Review offer comprehensive MCAT preparation courses that include practice exams, personalized coaching, and extensive study materials.
- b. *Self-Study:* A combination of textbooks, online resources, and practice tests. The AAMC provides official practice tests and preparation materials.
- c. *University Resources:* Many universities offer pre-med advising and resources to help students prepare for the MCAT.

### 3. Australia (UMAT/UCAT):

- a. *Prep Courses:* Similar to the MCAT, various organizations offer preparatory courses that include practice tests, skill-building exercises, and exam strategies.
- b. *Self-Study:* Students use a combination of textbooks, practice tests, and online resources tailored to the UCAT.

- c. *School Programs:* Some high schools and universities offer preparatory programs to assist students in their UCAT preparation.

#### 4. UK (BMAT)

- a. *School Support:* Many students receive guidance from their schools, which may offer BMAT-specific preparation sessions.
- b. *Self-Study:* BMAT preparation typically involves textbooks, past papers, and online resources.
- c. *Online Courses and Workshops:* Various online platforms provide courses and workshops focusing on BMAT sections, especially problem-solving and writing tasks.

### 4. Socio-Economic Challenges Faced by Aspiring Medical Students

#### 4.1 NEET in India

##### 1. Access to Quality Education:

- *Urban-Rural Divide:* Students in rural areas often lack access to high-quality schools and educational resources. This disparity significantly affects their preparation for NEET, as urban students typically have better access to advanced coaching centers and study materials. The National Eligibility cum Entrance Test (NEET), formulated by the Central Board of Secondary Education (CBSE), currently seems to disadvantage students from rural and economically backward state syllabi. (Shanbhag, Vagish Kumar.2018)
- *Language Barriers:* NEET is conducted in multiple languages, but the quality of study materials and coaching for regional languages can be inferior compared to those available in English or Hindi.

##### 2. Financial Constraints:

- a. *High Cost of Coaching:* Coaching centers, which are often deemed essential for NEET preparation, charge substantial fees, making them inaccessible to economically disadvantaged students.
- b. *Study Materials and Resources:* Quality textbooks, online courses, and other study aids can be expensive, adding to the financial burden on families.

##### 3. Opportunity Costs:

- a. *Economic Pressure:* Many students from low-income families face pressure to enter the workforce early to support their families, limiting the time and resources they can dedicate to NEET preparation.
- b. *Scholarships and Financial Aid:* While scholarships exist, they are limited and highly competitive, often not sufficient to cover all preparatory expenses.

#### 4.2 MCAT in the USA

##### 1. Financial Barriers:

- *Cost of Preparation Courses:* Commercial prep courses like Kaplan and The Princeton Review are often expensive, creating a significant barrier for students from low-income backgrounds.
- *Application Fees:* The MCAT itself is costly, and additional expenses include application fees for multiple medical schools, travel for interviews, and other associated costs.

##### 2. Educational Inequities:

- *School Quality Disparities:* There are significant differences in the quality of education provided by public schools in affluent areas compared to those in underfunded districts, impacting students' foundational knowledge and test preparation.
- *Access to Resources:* Wealthier students often have better access to private tutors, advanced placement courses, and extracurricular opportunities that strengthen their medical school applications.

##### 3. Socio-Cultural Factors:

- *First-Generation Challenges:* First-generation college students may lack mentorship and guidance on navigating the medical school admission process, putting them at a disadvantage.
- *Work-Life Balance:* Students from low-income families may need to work part-time or full-time jobs while preparing for the MCAT, limiting their study time and increasing stress levels.

#### 4.3 UCAT in Australia

##### 1. Regional Disparities:

- *Urban vs. Rural Access:* Students in rural or remote areas often face significant challenges in accessing UCAT preparation resources, including coaching centers and practice materials.
- *Educational Quality:* There is a notable difference in the quality of education between urban and rural schools, impacting students' readiness for the UCAT.

##### 2. Financial Constraints:

- *Cost of Preparation:* UCAT preparation courses and materials can be expensive, creating barriers for students from lower socio-economic backgrounds.
- *Additional Costs:* Application fees, travel expenses for interviews, and other associated costs add financial strain.

##### 3. Support Systems:

- *School and Community Support:* In some regions, schools and communities may not provide adequate support for UCAT preparation, leaving students to navigate the process on their own.

- *Equity Programs:* While there are programs aimed at increasing access for disadvantaged students, their reach and effectiveness vary.

#### 4.4 BMAT in the UK

##### 1. Financial Barriers:

- *Cost of Preparation Courses:* Like other entrance exams, BMAT preparation courses can be costly, creating a financial burden for students from low-income families.
- *Application Expenses:* The BMAT exam fee, along with university application fees and travel costs for interviews, adds to the overall financial strain.

##### 2. Educational Inequities:

- *School Quality Disparities:* There are significant disparities in the quality of education between state schools and private schools, with private school students often having better access to resources and support for BMAT preparation.
- *Access to Resources:* Wealthier students often have better access to tutors, extracurricular activities, and other opportunities that enhance their medical school applications.

##### 3. Socio-Cultural Challenges:

- *Awareness and Guidance:* Students from less privileged backgrounds may lack awareness of the BMAT and guidance on how to effectively prepare for it.
- *Mentorship and Support:* There is often a lack of mentorship and support for first-generation university applicants, who may struggle to navigate the complex admissions process.

#### 5. Addressing Socio-Economic Challenges

##### 1. Government and Institutional Support:

- *Scholarships and Financial Aid:* Expanding scholarships, grants, and financial aid programs can help alleviate the financial burden on economically disadvantaged students.
- *Subsidized Preparation Resources:* Governments and institutions can provide subsidized or free preparation courses and materials to ensure equitable access.

##### 2. Improving Access to Quality Education:

- *Enhancing Rural Education:* Investing in the quality of education in rural and underfunded schools can help bridge the gap between urban and rural students.
- *Equitable Distribution of Resources:* Ensuring that all students have access to high-quality study materials and preparation resources regardless of their socio-economic background.

##### 3. Support Systems and Mentorship:

- *Mentorship Programs:* Establishing mentorship programs that connect aspiring medical students with current medical students and professionals can provide valuable guidance and support.
- *Comprehensive Advising:* Schools and universities should offer comprehensive advising services to help students navigate the preparation and application process.

By addressing these socio-economic challenges, we can work towards a more equitable and inclusive medical education system that allows all aspiring doctors to achieve their potential, regardless of their background.

#### 6. Conclusion

The preparation for medical entrance exams like NEET, MCAT, UMAT, and BMAT varies significantly across countries, influenced by educational practices, socio-economic factors, and technological advancements. While each system has its strengths, there are common challenges that need to be addressed to ensure equitable access to medical education. By learning from global practices and adopting a more inclusive approach, the preparation for these exams can be improved, ultimately enhancing the quality and diversity of future healthcare professionals. Subsequently Implementation of suggested strategies, we can work towards a more equitable and inclusive medical education system that allows all aspiring doctors to achieve their potential, regardless of their socio-economic background. Creating a level playing field in medical entrance exams will not only enhance diversity in the medical profession but also ensure that the best and brightest minds have the opportunity to contribute to healthcare, irrespective of their socio-economic status.

#### 7. Recommendations

##### 1. Enhancing Accessibility:

- Governments and educational institutions should subsidize coaching and preparatory resources for economically disadvantaged students.
- Investment in digital infrastructure to ensure all students have access to online learning tools.

##### 2. Curriculum Integration:

- Schools should integrate entrance exam preparation into their curricula, providing students with structured support and resources.
- Emphasize holistic education that balances rote learning with critical thinking and problem-solving skills.

##### 3. Mental Health Support:

- The high prevalence of depressive and anxiety symptoms underscores the urgent need for accessible preventive and curative mental health services for students preparing for highly competitive exams like NEET. (Premkumar et al.,2022)
  - Providing professional psychological counselors, guidance, and access to healthcare professionals within educational institutions can significantly improve the mental health outcomes for students. (Thiriveedhi S, Myla A, Priya C, et al.August 28, 2023)
4. *Use of Clinically Relevant MCQs :*
- Introducing clinically relevant MCQs in NEET examinations can address the issue of students focusing on factual information rather than clinical medicine, which may negatively effect assessments.( Supe, Avinash. 2016).

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