

WELCOME TO MEU'S PRESENTATION FOR THE MONTH OF JULY '25

Topic: "Factors Influencing The Academic Performance Of Undergraduate Medical Students In Bangladesh "

a] Aptitude

b] Emotional Factors

c] Motivational Factors

Participating Disciplines: Department of Pathology
Department of Hepatology
Department of Psychiatry

Date : 14th July , 2025

Time : 08.00 am

Venue : Medical Education Unit (3rd Floor, College Building, DMC)

All respected Faculties are cordially invited

Medical Education unit

Dhaka Medical College

SPEAKERS



Dr. Farjana Pervin
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Factors Influencing the Academic Performance of Undergraduate Medical Students in Bangladesh

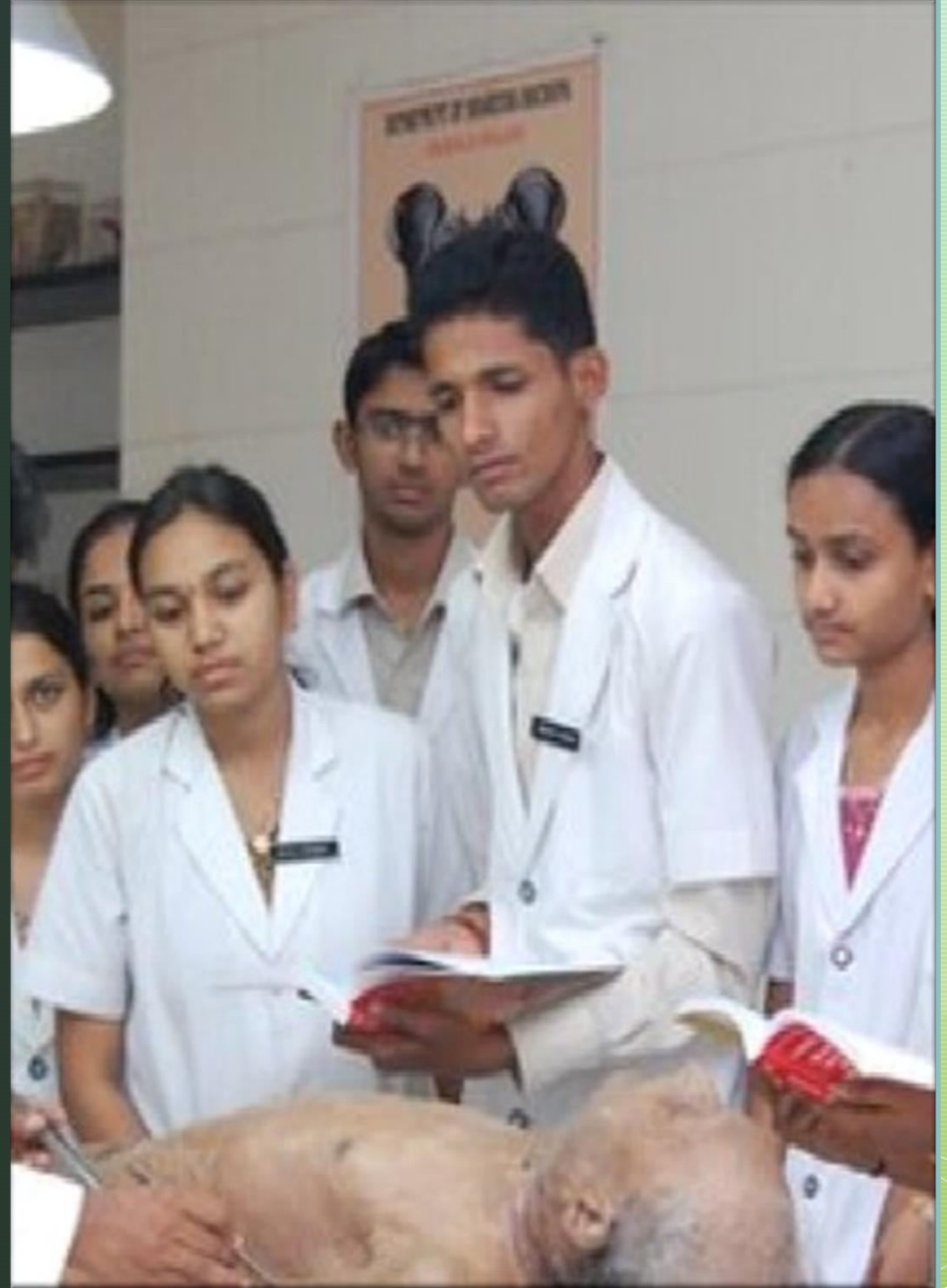
Dr. Farjana Pervin Nupur

Lecturer

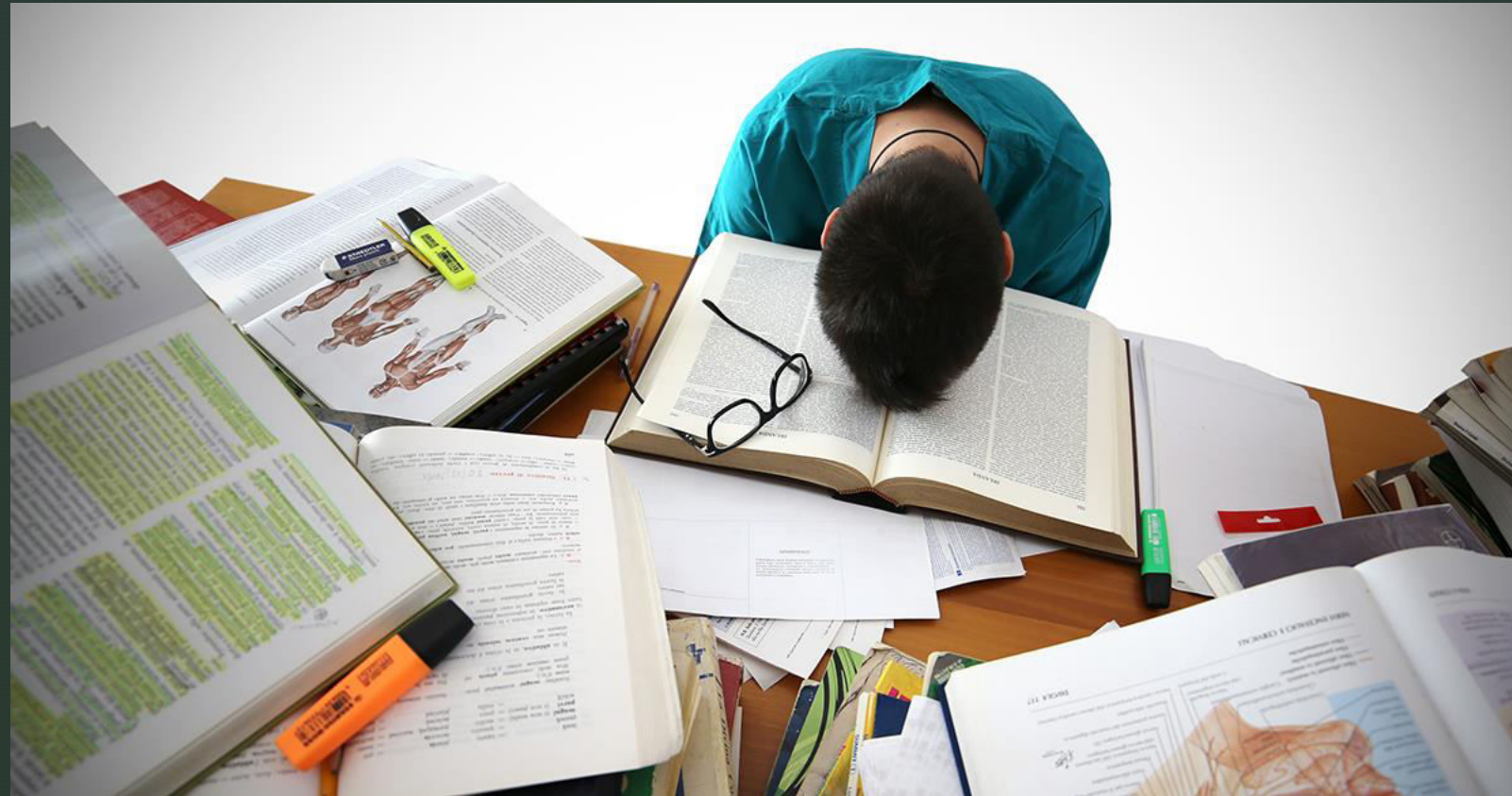
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Aptitude- unlocking potential



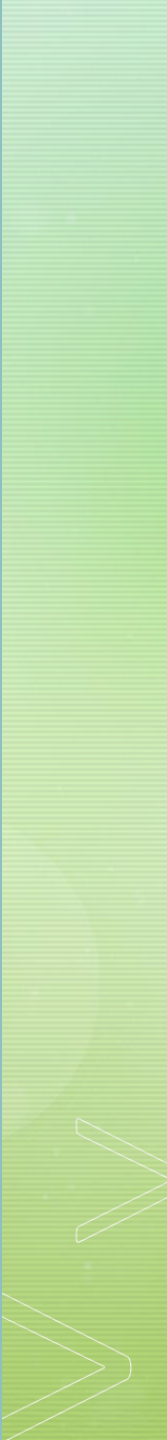


Introduction

The academic journey in medical school is shaped by various factors, one of which is aptitude.

It encompasses cognitive abilities such as logical reasoning, numerical skills, verbal comprehension, and spatial awareness.

This influences how well a student comprehends, retains, and applies medical knowledge.



Introduction cont.

- In Bangladesh, the existing admission system focuses primarily on memorization rather than assessing underlying aptitude.
- As a result, many students admitted may face difficulties coping with the demands of medical education.
- For example, a student with excellent memorization skills but weak problem-solving aptitude may struggle during clinical training.

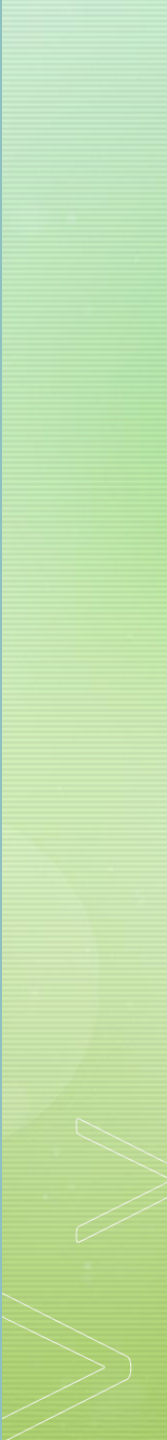




Aptitude definition

Aptitude refers to a person's natural ability to learn or perform in specific domains.

It differs from acquired knowledge or skills where it reflects potential rather than current competence.



Types of Aptitude

- **Verbal Aptitude:** Critical for understanding texts, medical terminology, and effective clinical communication.

For example, students with strong verbal aptitude may excel in pathology.

- **Numerical Aptitude:** Important for calculations, interpreting statistics, and understanding quantitative medical data.

Example: Numerical aptitude measures the ability to work with numbers, essential in biostatistics and pharmacology calculations.

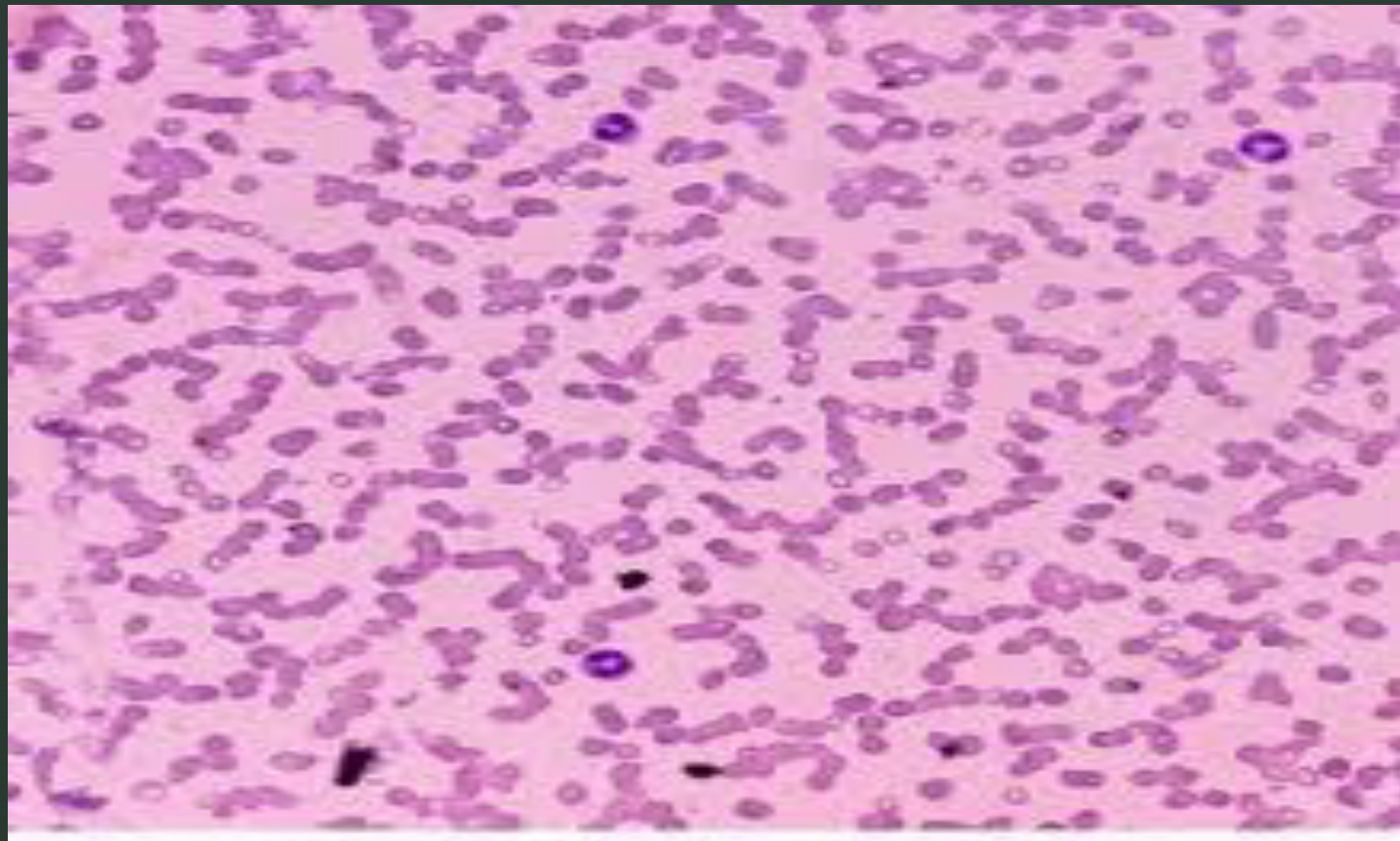
Types of Aptitude cont.

- **Logical Aptitude:** Helps in critical thinking, diagnosis, and problem-solving. Example: Logical aptitude can be enhanced through case-based learning
- Logical reasoning allows students to make inferences, analyze relationships, and solve problems—skills crucial in clinical diagnostics.

Types of Aptitude cont.

- **Spatial Aptitude:** Aids in understanding anatomical relationships, medical imaging, and surgical tasks. Example: Spatial aptitude is important in visualizing anatomical structures and performing surgical procedures.
- **Emotional Aptitude:** Influences empathy, patient interaction, and teamwork. Students strong in spatial reasoning may be encouraged toward surgical specialties.
- For example: Those with high verbal aptitude may benefit from history taking and critically ill patients.

Numerical aptitude



➤ Theoretical Framework for aptitude

This framework is rooted in educational and cognitive psychology.

- **Cognitive Load Theory:** Explains how students with higher aptitude handle complex tasks more efficiently.
- **Constructivist Learning Theory:** Emphasizes that learners actively build understanding based on cognitive ability and prior knowledge.

OSCE

Bloom's Taxonomy:
Shows how aptitude influences learning levels from recall to analysis and synthesis.



Oral examination

Multiple Intelligences Theory

(Gardner):

Identifies various domains of intelligence like verbal-linguistic, logical-mathematical, and spatial—each aligning with different aptitude types.



Clinical examination

• **Social Learning Theory:** Indicates that students with certain aptitudes (e.g., emotional aptitude) learn effectively through interaction and collaboration.



Practical examination

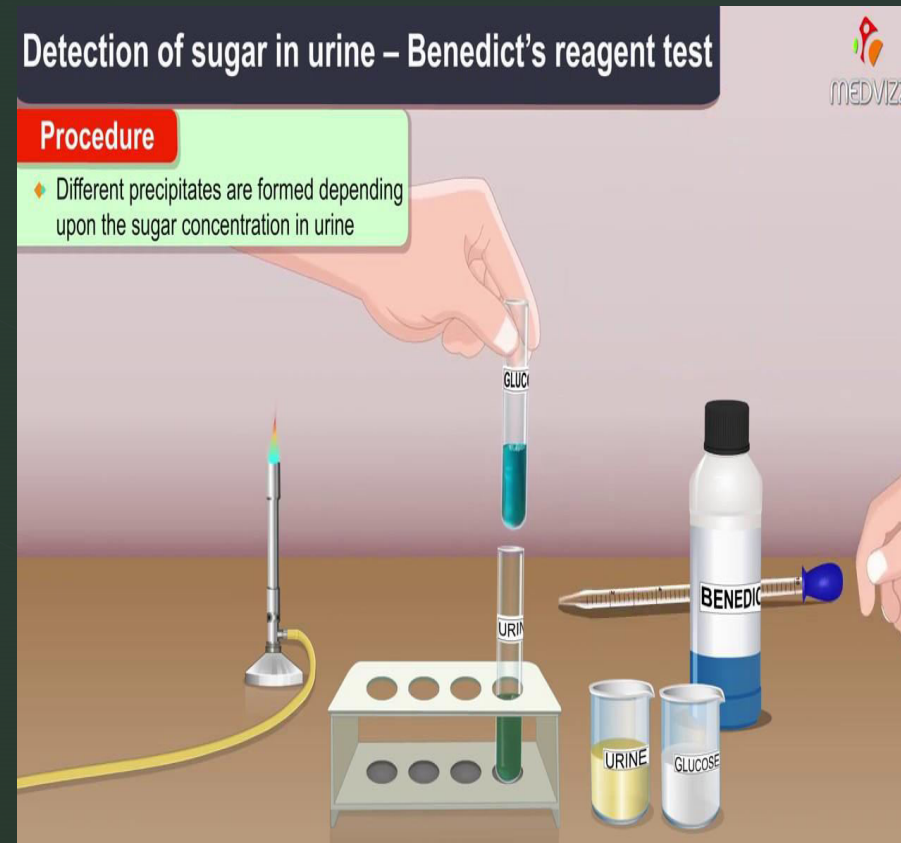
Constructivist Learning Theory: Emphasizes that learners actively build understanding based on cognitive ability and prior knowledge.

Detection of sugar in urine – Benedict's reagent test

medvizz

Procedure

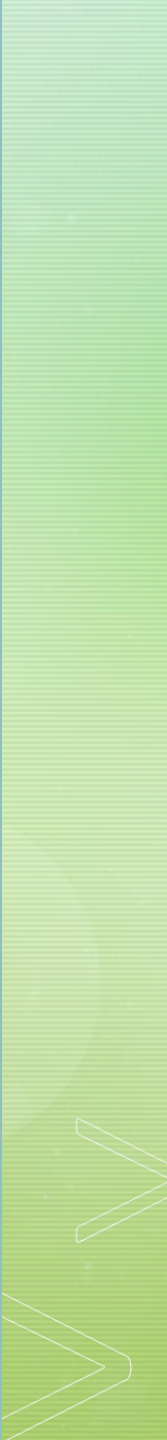
- ◆ Different precipitates are formed depending upon the sugar concentration in urine



The illustration shows a laboratory setup for the Benedict's reagent test. A hand is holding a test tube labeled 'GLUC' containing a blue liquid. Below it, another test tube labeled 'URIN' is held in a rack, containing a green liquid. A Bunsen burner is lit on the left. On the right, there is a bottle of Benedict's reagent, a test tube, and two beakers labeled 'URINE' and 'GLUCOSE'.



Importance of Aptitude

- Medical education requires more than just textbook knowledge—it involves critical thinking, quick decision-making, and practical application.
 - Moreover, it affects student motivation and resilience, especially during periods of academic stress.
 - This impacts how well students can apply textbook knowledge in real-life scenarios.
- 

Correlation between ▶ Aptitude and Academic Performance



- Aptitude-based interventions abroad have lowered dropout rates and improved course-specific scores.

Student Perceptions from global studies cont.

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Medical Education

Medical aptitude and its assessment

MINU MARY MATHEW, KENNEDY ANDREW THOMAS

ABSTRACT

The assessment of the suitability of an individual for the profession of medical science is carried out worldwide on the basis of several yardsticks. While a few methods assess domain knowledge of sciences, others focus on evaluating the cognitive aptitude skills of the candidate, while few others assess communicative skills. Though it has been considered that the possession of an aptitude for the profession is a prerequisite, considering its strenuous demands from the candidate, a comprehensive assessment of these areas under the construct of medical aptitude has not been analysed so far, though medical aptitude has been socially defined. This article attempts to develop a comprehensive construct to 'Medical aptitude', meant for the pre-medical student, which has been encapsulated with respect to the areas of its assessment. We did an extensive survey of the literature pertaining to the mode of selection of students towards medical profession and analysed their areas of assessments for admittance. This enabled to identify similarities in the areas of assessment which were then classified under several domains of assessment. Special reference to the keywords involving 'Aptitude' and 'Medical Aptitude' was made. We analysed the definitions to the construct of aptitude from the literature with respect to its relevance in the profession of medical science to be possessed by the pre-medical aspirant—in context. From this, a new construct of medical aptitude was formulated incorporating the existing construct of medical aptitude. Medical aptitude is a comprehensive construct that encompasses the dimensions of a consistent core, a peripheral content and the support of a scaffold. Each of these dimensions have their importance and distinct objective in being assessed in the pre-medical student. A perfect intertwining of these 3 dimensions can prove beneficial in assessing individuals to be fit for the profession of medical science.

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INTRODUCTION

Medical science is a complex course of professional studies offered in countries all over the world. The number of aspirants for the course in any country is larger than the number of positions

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available, suggesting that medical science is still one of the most sought after professions. This popularity can be attributed to several reasons ranging from a willingness to serve humanity through the profession,¹ parental influence,² influence from peers and relatives,³ acquisition of high social status,⁴ prestige associated with the profession⁵ and respect and honour accorded to the profession.⁶ The admission and selection criteria of medical aspirants is a rigorous process and involves competition of a high order. Medical science requires the candidate to have adequate intra- and interpersonal skills, a flexible approach to arrive at decisions, professionalism and an indomitable zeal to strive under stringent conditions, apart from possessing academic and clinical mastery of the subject. Assessing such individuals for admittance to the course is a challenge as it ranges from assessing knowledge of students in the spheres of pure sciences, cognitive aptitude and communication skills.

METHODS

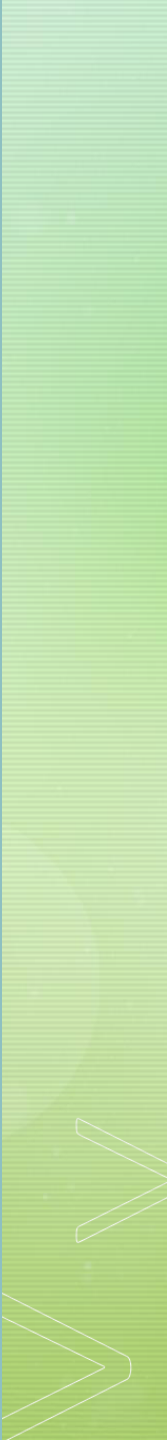
We did a literature review from January 2015 to September 2017 using JSTOR, ProQuest, Google Scholar and PubMed. We searched for key words and phrases such as 'reasons for joining medical profession', 'attitude towards medical profession', 'aptitude', 'aptitude for medical profession', 'assessment of medical aptitude' and 'aptitude for pre-medical aspirants'. These keywords led us to an amalgam of books in educational psychology, research articles from medical journals, review articles, research papers, short communications, documents, publications and reports from government organizations, prospectus of medical institutions, editorials, websites of organizations and institutions responsible for conducting tests for admittance to the medical profession, published legal information, reports and documents published from the Medical Council of India (MCI) and the General Medical Council (GMC) of the UK, conference proceedings, chapters from electronic books and prospectus of agencies assessing the entry of pre-medical students. These 62 documents were reviewed. If full-text articles could not be traced, their abstracts were referred to. The articles were categorized based on the content of the paper and its respective subheadings.

Of the 62 documents, 11 research papers dealt with reasons for adolescents choosing the profession, 6 research papers citing peer influence, parental influence, societal expectations, self-interest and motivation were studied in depth as the data were obtained from empirical studies. The rest were not included as these were non-empirical. The articles chosen dealt with the concept of 'attitude towards the medical profession' that is essential for

- The literature affirms a strong relationship between aptitude and academic achievement.
- Only 28% were aware of spatial aptitude's relevance in medical studies.
- Majority reported aptitude-aligned teaching improved their engagement and retention in learning.



Global perspective

- Nigerian research found high verbal aptitude enhanced performance in oral exams and clinical communication.
 - In the US, the MCAT assesses reasoning to predict medical school success.
- 

Impact of Demographic Factors

- Urban students scored higher in verbal and logical aptitude.
- Students from English-medium schools outperformed in verbal and numerical aptitude.
- Male students had slightly higher spatial aptitude; females excelled in verbal and emotional aptitude.

Bangladesh perspective

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Original Article

Aptitude and Academic Performance Among Medical Students of Bangladesh *Roy HL¹, Alam KK², Nargis S³*

Abstract

Background: aptitude is one of the major determinants of effectiveness of students' learning'. **Aims and Objectives:** To find out the relationship between aptitude and academic performance among medical students of Bangladesh. **Materials and Methods:** This cross-sectional study was conducted to assess the relationship between aptitude tests' scores and academic performances of the medical students of Bangladesh. A total of 436 student respondents participated in this study from eight purposively selected of Bangladesh those are located at Dhaka. As well as outside Dhaka from January to December 2022 using a pretested semi-structured self-administered questionnaire. **Results:** This study Finding showed that very few medical students scored $\geq 60\%$ in verbal reasoning (17.4%), abstract reasoning (21.8%), situational judgement tests (6.2%) and total aptitude tests (12.4%); but the numerical reasoning was good (60.1%). no significant association was found between deferent aptitude tests' scores and academic performances of the medical students. **Conclusion:** It can be recommended that we can consider to introduce aptitude tests in our medical student selection process so that students with good aptitude tests scores can enrolled in the course.

Keywords: Aptitude, Academic performance, Test score, Medical students

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Introduction

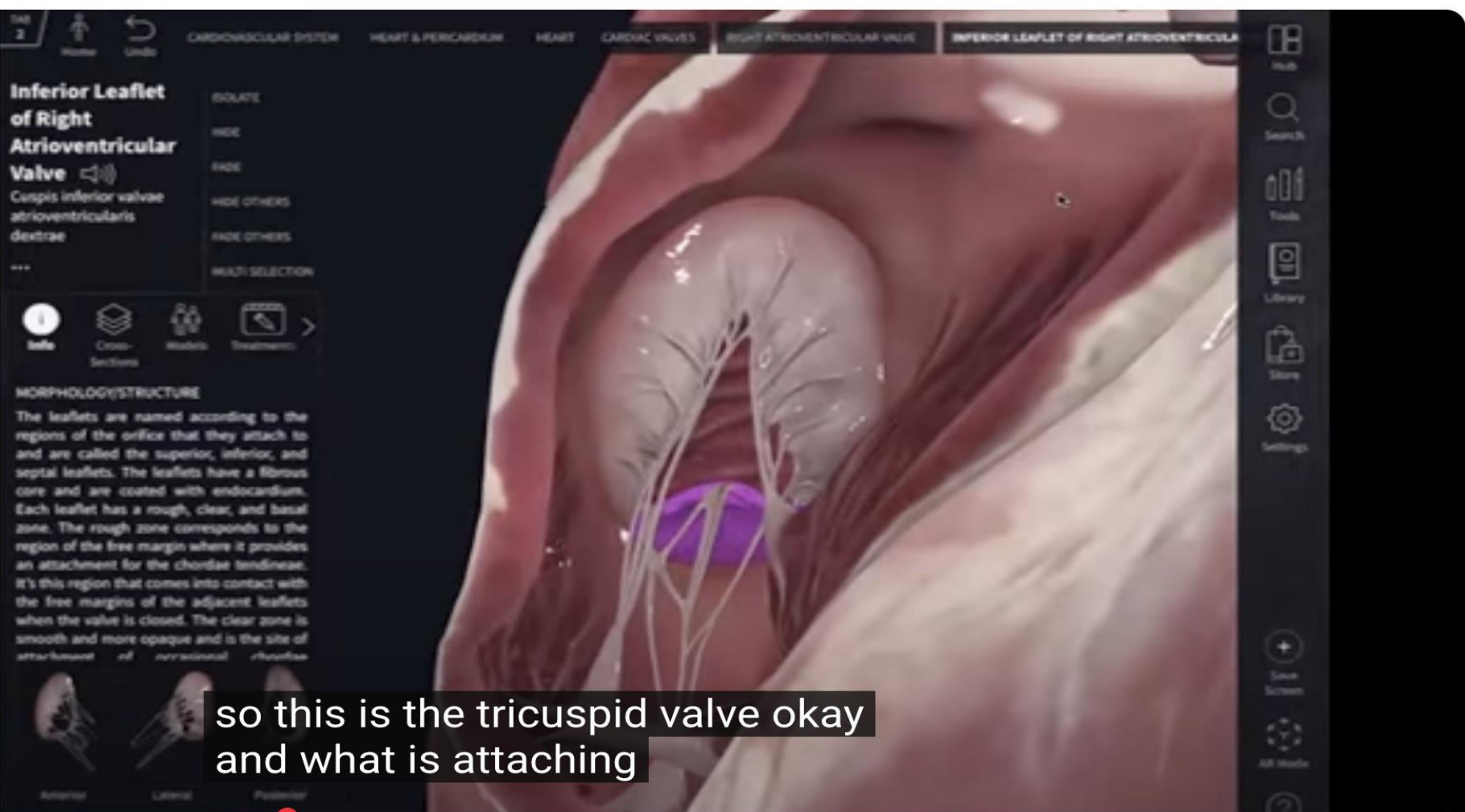
Education is a vehicle of knowledge, self-preservation, and success¹. Moreover, it helps individuals participate in society's basic functions and acquire an essential educational foundation for their development into productive versatile citizens². Teachers should instruct students and ensure that they

students' importance, especially graduating students, doing well in their studies has centered the attention of parent legislators, bureaucrats, and educational personnel². As with any other matter, if academic performance cannot measure, it cannot be upgraded. Therefore, academic performance becomes vital when dealing with educational

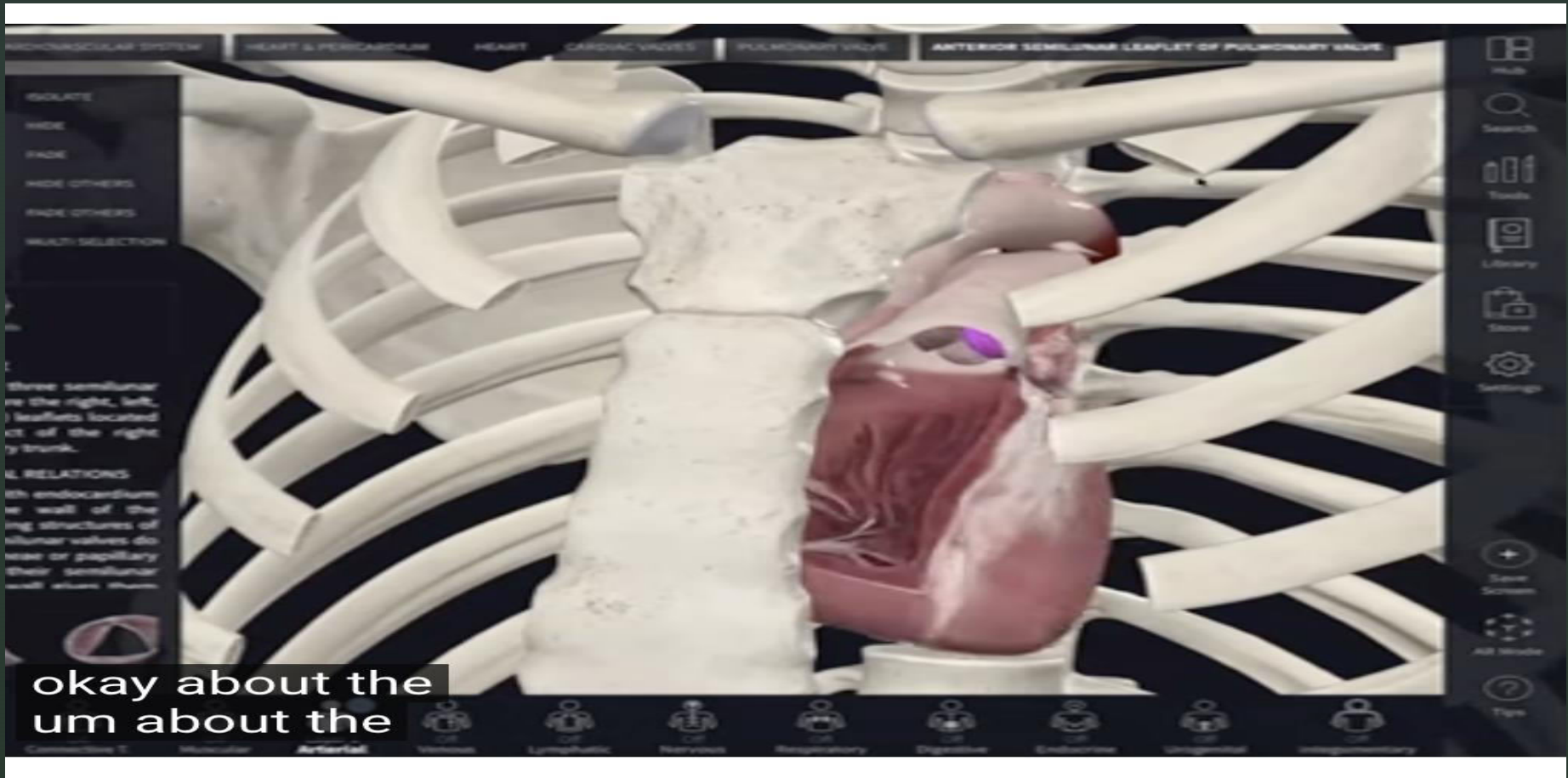
- Aptitude supports development of soft skills like communication and teamwork, essential in clinical roles.
- So, there is a clear need for studies in Bangladesh that explore these insights within the local academic and cultural context.

Recommendations

- Introduce aptitude **screening** during medical college admissions.
- Encourage aptitude-building through **extracurricular and academic activities**
- **Incorporate** aptitude-enhancing activities **in the curriculum** (e.g., simulations for spatial/logical skills).
- **Train faculty** to recognize and support diverse cognitive profiles.
- **Create awareness** campaigns on the importance of aptitude in academic and clinical success



so this is the tricuspid valve okay
and what is attaching



How to improve the present condition



▶ **How to improve the present condition**

The first objective should be to find out the gap in our perspective.

Second, we should identify which specific aptitudes—numerical, verbal, logical, or spatial—are most predictive of success in particular subjects.

Then find out who needs them and finally work on them.



Limitations

In Bangladesh, medical students often lack structured support systems tailored to individual learning needs.

Standardized aptitude tools may lack full cultural adaptation.

Conclusion



In conclusion, Aptitude plays a vital, underrecognized role in shaping academic success among medical students. So, Recognizing and nurturing varied aptitudes can improve academic outcomes, reduce dropout rates, and enhance clinical preparedness.

So, policymakers and educators must consider cognitive diversity to build a resilient, competent healthcare workforce in Bangladesh.

**Thank
You**

