

Students' View about Attitude and Aptitude Test of Students in the Selection Process of MBBS Course in Bangladesh

Tasnim E N¹, Parvin N², Barua R³, Rahman MM⁴, Asrafe M H⁵, Rahman MM⁶, Alam KK⁷

Abstract

Attitude and aptitude are the two important criteria to select medical professionals. Interest for the subject is a pre requisite as well as students need high levels of motivation, intelligence and stamina to cope up with the stresses encountering in the steps of medical profession. Currently, no research is found to identify attitude and aptitude of students as selection criteria of MBBS course of Bangladesh. This descriptive type of cross sectional study was carried out from January 2021 to December 2021, among 617 undergraduate medical students of 8 medical colleges of Bangladesh. Data were collected by self-administered pre tested structured questionnaire, then compiled and analysed using SPSS version 26. Regarding need of attitude test, the study revealed that 97.7% students and regarding aptitude test 90.8% students were agreed. Among the reasons in favour of attitude test, maximum (54.89%) students were agreed about the statement "Cause of their eagerness to enrol into this course will be known". Regarding reasons in favour of aptitude test, mean score were above 4 (out of 5) by majority (90.8%) of students in selected 4 areas of professionalism-1) Knowledge, skill and performance, 2) Safety and quality of treatment, 3) Communication and teamwork and 4) Morality and gaining trust. The study emphasizes that attitude and aptitude test are essential need for the MBBS candidates. So, the tests may be the essential part selection process.

Keywords: Attitude, aptitude, selection process, medical students.

1. Dr. Basun -E-Tasnim, Assistant Professor of Surgery, Centre for Medical Education (CME), Mohakhali, Dhaka-1213
2. Dr. Nilufa Parvin, Junior Consultant (Paediatrics), Attached to Centre for Medical Education (CME), Mohakhali, Dhaka-1213
3. Dr Ripon Barua, Associate Professor of Microbiology, Principal Scientific Officer, Institute of Epidemiology, Disease Control & Research (IEDCR), Mohakhali, Dhaka-1213
4. Dr Md Mohibur Rahman, Assistant Professor of Orthopedics, Attached to Centre for Medical Education (CME), Mohakhali, Dhaka-1212.
5. Dr. Md. Hassan Asrafe, Intern Doctor, Holy Family Red Crescent Medical College Hospital, Dhaka.
6. Dr. Mohammad Mustafizur Rahman, Assistant Professor of Surgery, Shaheed M Monsur Ali Medical College, Sherajgonj.
7. Dr. Kazi Khairul Alam, Associate Professor of Medical Education, Centre for Medical Education (CME), Mohakhali, Dhaka-1213.

Author of correspondence: Dr Nasim-E-Tasnim, Assistant Professor of Surgery, Centre for Medical Education (CME), Mohakhali, Dhaka-1213, Bangladesh. Email: drnasimetasnim@gmail.com

Introduction

Attitude is the expression of our internal make up. In psychology, it is an acquired tendency of human to evaluate certain things in terms of a predefined frameset. As a result, attitude might be characterized as a "summary appraisal of a thought object"¹.

Aptitude is the measure of person's ability to learn specific skill or gain knowledge that helps achieving goal. It is the reflection of a person's intellectual ability to learn through experiences. In practical aspect, attitude and aptitude are very close as their origin. The word 'attitude' comes from the French word "attitude", which is derived

from the Latin word "aptitude", which meaning "fit"². So aptitude is the psychological fitness to do specific act at a targeted level.

Evans³ discovered a strong link between students' attitudes and achievement at the start and conclusion of an introductory undergraduate college statistics.

A medical student who would respond successfully to national health demand should be mentally capable, self-disciplined, and emotionally devoted to the medical education process, according to most expert. Intellectual flexibility, inquisitiveness, critical reasoning, logical thinking, tolerance, and the ability to manage the ambiguity and uncertainties are examples of non-cognitive qualities⁴.

These characteristics, however, were found to be associated with strong clinical performance but not with prior academic achievement as judged by grades and cognitive tests⁵.

Stalnaker⁶ felt it was important in testing of personnel to indicate the fitness for a profession in particular. This is referred to as an aptitude test, which is defined as "a test devised and used to anticipate how well someone might perform in a certain ability area in the future" by the National Council on Measurement in Education⁶.

This aptitude need to be tested, to ensure that the right candidate is chosen and not just the one with the highest marks in the science subjects⁷.

Both attitude and aptitude are of utmost important for being medical professionals. Aptitudes in respect of different areas of professionalism guide to the ultimate career of a medical student. The professional behaviours developed at an early stage of a doctor's training are likely to be continued throughout their career⁸.

The standards of professional behaviour expected of medical students in UK are outlined in 'Achieving good medical practice: guidance for medical students'⁹.

For good medical practice GMC⁹ recommended the areas of knowledge, skill and performances, safety and quality, communication, partnership and teamwork and maintaining trust whereas Pritzker School of Medicine emphasized on professional responsibilities, professional relationship and professional ethics¹⁰. The selection process should have the ability to choose the persons who would be the effective members of the profession and able to meet the need of the society¹¹. So to find out the areas of professional interest among examinees should be the focus of selection process.

However, now is a good time to develop and practice selection tools that could be beneficial enhancement to a holistic selection process that is fair, transparent, and accountable to both candidates and their potential patients¹².

In our country, it is not known who are the appropriate candidates and who are not. The existing selection system mainly selects students according to their academic qualification by previous records and written (MCQ) test. Oral test is not a component of selection process. There is no aptitude test or any other test to examine candidate's behavior, attitude, motivation etc.

There are no such studies conducted in our country to identify the problem magnitude as well as the areas to be focused in the selection process of MBBS course. So it was intended to conduct a study about attitude and aptitude test to describe its importance and the need of incorporation in the selection process.

This study may generate an overview regarding importance of attitude and aptitude test in the selection process of MBBS course of Bangladesh. It emphasizes that willingness is the principal motivator that prepares the student to take the responsibility of his career and the power of ability helps to maintain the activities

Method

This descriptive type of cross sectional study was carried out from January 2021 to December 2021, among 617 students of 4 government and 4 private medical colleges of Bangladesh. Willing students were respondent. Convenience sampling technique was adopted. Questionnaire was developed through review of literatures^{9,10} according to present country context. Data were collected

concerned. Such an opinion finding study would help policy makers, health personnel and other stakeholders in formulating policies and taking necessary actions. It may also help the medical community to find the proper tool of student selection and also prevent the misuse of time, money and energy.

by pre tested self-administered structured questionnaire. Data were checked, processed and analyzed by using Statistical Package for Social Science (SPSS) computer software version 26. Likert scale was used to measure some responses of respondents. Scores were given to each scale as: strongly agree=5, agree=4, neither agree nor disagree=3, disagree=2, strongly disagree=1. Interpretations were done subsequently.

Results:

Among 617 students 97.7% responded positively regarding need of attitude test and 90.8% responded positively regarding need of aptitude test. (Fig 1)

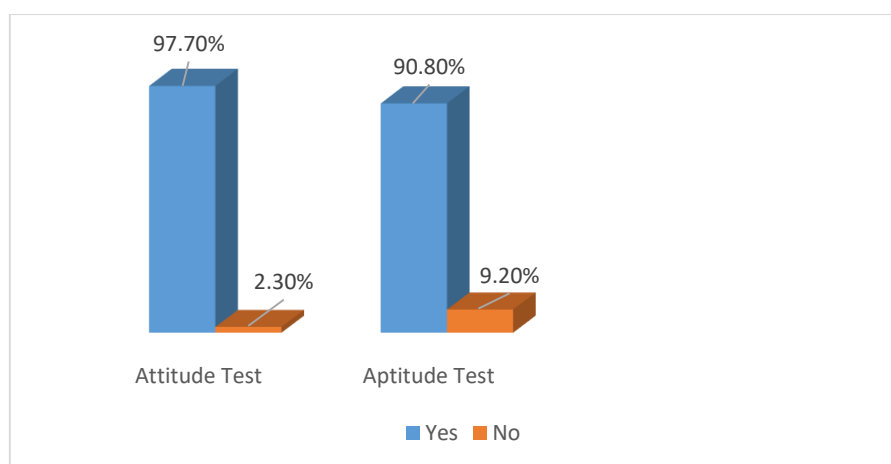


Figure 1: Distribution of the medical students as per their views regarding the need of attitude and aptitude test in the selection process of MBBS course of Bangladesh

Regarding the reasons in favour of the need of attitude test, maximum (54.89%) students agreed that 'Cause of their eagerness to enroll into this course will be known' and 52.40% agreed on Bangladesh Journal of Medical Education 2022; 13(2); Tasnim et al., publisher and licensee Association for Medical Education. This is an Open Access article which permits unrestricted non-commercial use, provided the original work is properly cited.

'Percentage of defaulter/drop out will be less' (Table 1). As causes of their enrolment in to the MBBS course, it is found that 48.76% students enroll to 'Fulfil own dream' and 47.60 % to

‘Fulfil the parents’ wishes’-(Table 2). Among 617 students 14 (2.3%) students thought that there was no need of attitude test. As reasons most of the students (57.14%) mentioned about ‘They take help from others’ and 50% students supported the statement ‘They are instructed by guardians’.Regarding reasons in favour of aptitude test 4 areas of professionalism were selected as 1)knowledge, skill and performance, 2) safety and quality of treatment, 3) communication and team work and 4) morality and gaining trust. In case of knowledge, skill and performance, maximum 56.43% students were strongly agreed that they have to ‘Work hard both physically and mentally’ and 52.86% to ‘Analyze many clinical issues critically’. Almost half of the students (51.61%) agreed that they have to ‘Keep themselves updated with the recent knowledge, skill and technology’. Considering Safety and quality of treatment, 56.07% students strongly agreed about ‘Take quick and correct decision in emergency situation’ and 53.39% students agreed about

‘Teach the people on health and hygiene’(Table 3).

In regards of communication and team work (n=560), 48.75% students were agreed that they have to ‘control the mob in sensitive issues’and 48.39% students were agreed on ‘Work in a team irrespective of different class, opinion and belief’(Table 3). In the issue of morality and gaining trust (n=560), 55% students strongly agreed about ‘Work with honesty and morality’ and 53.21% students strongly agreed about the statement ‘Maintain the privacy and secrets of patients’(Table 3).

Regarding the reasons against of the need of aptitude test in the selection process of MBBS course of Bangladesh, the statements were aptitude test is ‘Very difficult as it needs to know the total human psychology of a candidate’(47.37%), it is ‘Possible in presence of a psychologist so psychologist is required’(35.09%) and unnecessary as it cannot predict the future performance as a doctor(31.58%).

Table 1: Distribution of medical students as per their views regarding the reasons in favour of the need of attitude test in the selection process of MBBS course of Bangladesh(n= 603)

If the interested candidates enroll in the MBBS course:	Level of agreement with corresponding score					Mean (±SD)
	1=SDA	2=DA	3=NAND	4=A	5=SA	
They will enjoy the course	10 (1.66)	11 (1.82)	28 (4.64)	285(47.26)	269(44.61)	4.31(0.79)
They will make good results in the examination	5 (0.83)	39(6.47)	15 (19.07)	312(51.74)	132 (21.89)	3.87(0.85)
Percentage of defaulter/drop out will be less	8 (1.33)	33 (5.47)	82 (13.60)	316(52.40)	164 (27.20)	3.98(0.86)
Society will get good physicians	9 (1.49)	29 (4.81)	69 (11.44)	260(43.12)	236 (39.14)	4.13(0.90)
There will be a reduction of wastage of time, money and energy	20 (3.32)	44 (7.30)	92 (15.26)	267(44.28)	180 (29.85)	3.90(1.02)
Cause of their eagerness to enroll into this course will be known	7 (1.16)	11 (1.82)	74 (12.27)	331(54.89)	180(29.85)	4.10(0.76)

Table 2: Distribution of medical students as per their views by the causes of their enrolment in to the MBBS course (n=603)

The candidates enroll in the MBBS course to:	Level of agreement with corresponding score					Mean(±SD)
	Number (%)					
	1=SDA	2=DA	3=NAND	4=A	5=SA	
fulfil own dream	12(1.99)	22(3.65)	56(9.29)	294(48.76)	219(36.32)	4.14(0.87)
fulfil the parents' wishes	10(1.66)	46(7.63)	68(11.28)	287(47.60)	192(31.84)	4.00(0.94)
hold a prestigious position	21(3.48)	39(6.47)	61(10.12)	282(46.77)	200(33.17)	3.99(1.00)
serve the humanity	15(2.49)	45(7.46)	90(14.93)	246(40.80)	207(34.33)	3.97(1.01)
earn a lot of money	91(15.09)	133(22.06)	164(27.20)	145(24.05)	70(11.61)	2.95(1.23)
follow the family members and relatives who are doctor	122(20.23)	152(25.20)	167(27.69)	134(22.22)	28(4.64)	2.65(1.16)
solve the marital purpose	190(31.51)	130(21.56)	138(22.89)	96(15.92)	49(8.13)	2.47(1.29)

SDA= Strongly disagree, DA= Disagree, NAND = Neither agree nor disagree, A =Agree, S =Strongly agree.

Table 3 Distribution of medical students as per their views in favour of the need of aptitude test in the selection process of MBBS course of Bangladesh in selected 4 areas of professionalism:1)knowledge, skill and performance 2) safety and quality of treatment 3) communication and team work 4)morality and gaining trust(n=560)

Medical students/ professionals have to :	Level of agreement with corresponding score					Mean (±SD)	
	Number (%)						
	1=SDA	2=DA	3=NAND	4=A	5=SA		
Knowledge, Skill & Performance	Acquire enormous knowledge & skill	5 (0.89)	6 (0.71)	23 (4.11)	284 (50.71)	244 (43.57)	4.35 (0.68)
	Work hard both physically &mentally	2 (0.36)	12(2.14)	25 (4.46)	205 (36.61)	316 (56.43)	4.47 (0.71)
	Keep themselves updated with the recent knowledge, skill and technology	5 (0.89)	8 (1.43)	20 (3.57)	289 (51.61)	238 (42.50)	4.33 (0.70)
	Analyze many clinical issues critically	6 (1.07)	7 (1.25)	13 (2.32)	238 (42.50)	296 (52.86)	4.45 (0.71)
	Sacrifice their rest and recreation a bit	14 (2.50)	31 (5.54)	61 (10.89)	221 (39.46)	233 (41.61)	4.12 (0.98)
Safety & quality of treatment	Response quickly in patient's need	3 (0.54)	6 (1.07)	13 (2.32)	263 (46.96)	275 (49.11)	4.43 (0.65)
	Prioritize what should be done earlier	2 (0.36)	5 (0.89)	20 (3.57)	262 (46.79)	271 (48.39)	4.42 (0.64)
	Teach the people on health and hygiene	1 (0.18)	7 (1.25)	26 (4.64)	299 (53.39)	227 (40.54)	4.33 (0.64)
	Motivate others to live healthy life	1 (0.18)	5 (0.89)	21 (3.75)	291 (51.96)	242 (43.21)	4.37 (0.62)

	Take quick & correct decision in emergency situation	2 (0.36)	6 (1.07)	10 (1.79)	228 (40.71)	314 (56.07)	4.51 (0.63)
Communication & team work	Work in a team irrespective of different class, opinion and belief	2 (0.36)	18 (3.21)	34 (6.07)	271 (48.39)	235 (41.96)	4.28 (0.75)
	Interact effectively with peoples of varying social and cultural backgrounds	7 (1.25)	12 (2.14)	53 (9.46)	266 (47.5)	222 (39.64)	4.22 (0.80)
	Counsel the patient and attendants about details of the disease	1 (0.18)	13 (2.32)	24 (4.29)	270 (48.21)	252 (45)	4.36 (0.69)
	Announce good & bad news with proper feelings/expressions	6 (1.07)	17 (3.03)	42 (7.5)	264 (47.14)	231 (41.25)	4.24 (0.80)
	Control the mob in sensitive issues	9 (1.61)	13 (2.32)	29 (5.18)	273 (48.75)	236 (42.14)	4.28 (0.80)
Morality and gaining trust	Work with honesty and morality	7 (1.25)	7(1.25)	18(3.21)	220 (39.29)	308(55)	4.46 (0.73)
	Maintain the privacy and secrets of patients	9 (1.61)	22(3.93)	27(4.82)	204 (36.42)	298(53.21)	4.36 (0.87)
	Respect others autonomy (in thought / action)	7 (1.25)	18(3.21)	32(5.71)	266 (47.5)	237(42.32)	4.26 (0.81)
	Be cautious about self-esteem and patient's dignity	5 (0.89)	13(2.32)	17(3.04)	250 (44.64)	275(49.10)	4.39 (0.74)
	Admit the limitation of knowledge, skill and performance	10 (1.79)	18(3.21)	41(7.32)	287 (51.25)	204(36.42)	4.17 (0.84)

SDA= Strongly disagree, DA= Disagree, NAND = Neither agree nor disagree, A =Agree, SA =Strongly agree

Discussion

All medical doctors start their professional career as a medical student. So, it is important to gain perspective on medical student's thoughts about a standardized admission test. Standardized tests are of particular interest to researchers and policy makers because tests and their scores are often vital components in decision making process¹³.

It is well accepted that candidates' personal liking-disliking is the first pre-requisite for choosing a profession and other qualities like mental and physical abilities are modified on the basis of it. No study found about the necessity of attitude and aptitude test separately for MBBS course but a literature review done by Mathew and Thomas showed the nearly thoughts. They worked about the interest of the students for the profession and assessment of the areas of medical aptitude¹⁴.

Regarding the reasons in favour of the need of attitude test

Regarding the reasons in favour of the need of attitude test 47.26% students agreed that 'they will enjoy the course' and 51.74% students agreed about 'they will make good results in the examination'. Both the statements are interrelated as who enjoys the course does good in examination.—At the University of Missouri-Columbia School of Medicine, Murden R et al worked among 458 students and evaluated the admission interview data and college academic credentials¹⁵. That study showed that personal characteristics like motivation for medicine correlated significantly with the performance that was resulted as internship letter rating ($p=0.0003$). On the other hand, Willoughby et al investigated the prediction of medical school success from selection variables where a correlation was not found for the aspects like attitude with academic achievement⁵.

Bangladesh Journal of Medical Education 2022; 13(2); Tasnim et al., publisher and licensee Association for Medical Education. This is an Open Access article which permits unrestricted non-commercial use, provided the original work is properly cited.

In this study, 52.40% students agreed on 'Percentage of defaulter/drop out will be less'. A study conducted in Bangladesh shows that personal liking and interest is very important to continue and complete the MBBS course duly. It was found that 25% of defaulters and 72.7% of dropouts had no personal liking for medical education¹⁶.

Actually it was a vicious cycle of disinterest/disliking, bad score in the exam, defaulters/dropouts, depression, despair and again worse score. The consequences of this events sometimes led to substance abuse, addiction, problematic internet behavior, suicidal ideation or occurrence of suicide. Study done in Bangladesh showed that medical students who came to medical study willingly without any pressure from the family had less tendency to suicide (33.30%)¹⁷.

Regarding the statement 'There will be a reduction of wastage of time, money and energy' 44.28% students agreed. This was very much justified in all regards of the country like Bangladesh. Because the price of wrong choice was non-refundable and made a student totally non-productive for the society and the country. A study done in Khaibar Medical College, Peshawar, Pakistan on 200 undergraduate medical students a total of 78 (40%) students felt that they had made a wrong career choice¹⁸.

Among 603 students, 294(48.76%) agreed that they enrolled to 'fulfil own dream'. It was supported by the study done in Khaibar Medical College, Peshawar, Pakistan where among 200 undergraduate medical students a total of 138 (66%) students had chosen the profession to fulfil own dream¹⁸. But just

opposite scenario was found in a study done in the Addis Ababa University, Ethiopia which showed that only 1.2% (7 out of 600) supported similar statement 'to fulfil the childhood dream'¹⁹.

In this study, 246(47.60%) students agreed that they enroll 'To fulfil the parents' wishes'. The study by Shahab showed that among 200 undergraduate medical students a total of 57 (29%) students had chosen the profession to fulfil the parents' wishes¹⁸. But study of Ethiopia showed that only 63 (10.5%) undergraduate students supported this point¹⁹. The statement 'To serve the humanity' was supported by 246(40.80%) students in present study. Almost similar findings found in study of Ethiopia (46%)¹⁹ and Pakistan (29%)¹⁸.

The statement 'To earn a lot of money' was supported by 145 (24.05%) students. Near similar findings were found in the study done by Deressa and Azazh (20.7%)¹⁹ and Shahab (29%)¹⁸. In this study, 282(46.77%) students agreed that they enrolled 'To hold a prestigious position'. But Ethiopia's study showed that only 13.3% of students supported this statement¹⁹. It was expressed that ideas regarding physician's position in the society had been changing.

Regarding the reasons in favour of the need of aptitude test

In the area of knowledge, skill and performance, statements- 'Acquire enormous knowledge and skill', 'Work hard both physically and mentally', 'Keep themselves updated with recent knowledge, skill and technology' and 'Analyze many clinical issues critically' were graded as strongly agreed (mean score >4) by the respondents.

Similar result (mean score of grade > 4) found in a study done by Tsai T-C et al whose statements were 'To make a commitment to lifelong learning', 'volunteering one's skills and expertise for the welfare of the community' and 'Being accountable to society for addressing the health needs of the public' and 'Being capable to provide best health care'²⁰.

Regarding safety and quality of treatment, the statement 'Sacrifice their rest and recreation a bit' had more mean score (4.12 ± 0.98) than similar statement like 'Accepting inconvenience to meet the needs of patients' (3.78 ± 1.09) of the study of Tsai T-C²⁰. This indicated that students of this study were more concerned about patient's wellbeing.

In this study, 275 (49.11%) students strongly agreed about the statement 'Response quickly in patient's need'. In a Malaysian study, 80.0% pre-clinical and 86.1% clinical students voted as 'very important' for almost same statement 'Recognize and meet patient needs'.

Another statement 'Take quick and correct decision in emergency situation' was strongly supported by 56.31% students of this study. Similar result found in Malaysian study where 77.5% preclinical and 77.7% clinical students mentioned the statement 'maintaining composure in a difficult situation' as very important²¹.

The statement 'Interact effectively with peoples of varying social and cultural backgrounds' had mean score and SD of 4.22 ± 0.8. Taiwanese study showed almost similar result (4.18 ± 0.95) for the statement 'Being culture sensitive'²⁰. This statement

'Counsel the patient and attendants about details of the disease' obtained the mean score 4.36 ± 0.69 from our students. The statements 'Announce good news and bad news with proper feelings/ expressions' and 'Control the mob in sensitive issues' got mean score 4.4 ± 0.77 and 4.24 ± 0.8 respectively. The statement contained the idea of above three statements as 'Masterly communications and expression, being able to listen' from Taiwanese study had similar mean score (4.63 ± 0.56)²⁰.

The statement 'Work with honesty and morality' had mean and SD of (4.46 ± 0.73). Tsai T-C showed that 'Integrity and being fair' had mean and SD of (4.44 ± 0.72)²⁰. It proved that regarding this issue all medical professionals are equally concerned irrespective of age, society, culture and country.

In this study, 53.21% students strongly agreed about the statement 'Maintain the privacy and secrets of patients'. In a Malaysian study similar statement 'Maintaining patients' confidentiality' 90% preclinical and 91.6% clinical students mentioned as 'very important'. Regarding this aspect, our study students' mean score and SD were (4.36 ± 0.87)²¹. The statement 'Respect others autonomy' had mean score and SD of the studied students 4.26 ± 0.81. Taiwanese study showed that the statement 'Respect patients and their families, commitment to patients' confidentiality' had mean and SD of (4.73 ± 0.51) which was greater than the value of present study²⁰. Easy availability of patient and our socio-cultural condition made our physician think superior than the patient. It should be addressed that Bangladeshi physicians needed to be more respectful to patients.

The statement 'Admit the limitation of knowledge, skill and performance' was agreed by 51.25% students in this study. Similar statement 'admitting errors / omissions' was mentioned by 78.8% preclinical and 80.7% clinical students in Malaysian study²¹.

Conclusion :

Results of this study show that the issue of attitude and aptitude test has been extremely welcomed by respondents. The study proves that attitude and aptitude test are essential need for the medical students, as majority students agreed about it. Regarding attitude, the study reveals that candidates' interest is directly related with the enjoyment of the course, good result in the examination and finally good physician of the society. It is also inversely related with the failure in the course, defaulters and dropouts. Regarding aptitude, the study depicts that dealing with different areas of professionalism needs sound psychological capabilities. These areas should be focused for care and nurture both theoretically and practically.

Acknowledgement:

Prof. Dr. Md. Humayun Kabir Talukder, Professor of Curriculum Development and Evaluation, Centre for Medical Education (CME), Mohakhali, Dhaka.

References:

1. Bohner, G., & Wänke, M. (2002). 'Attitudes and attitude change', Psychology Press.
2. Das, S.K., Halder, U.K., Mishra, B. and Debnath, D. (2014) 'Study on relationship between attitude towards education and academic achievements in secondary level minority students' *Indian Streams Research Journal*, 4(10), p.1.
3. Evans, B. (2007) 'Students attitude, conception and achievements in introductory undergraduate college statistics'. *The Mathematics Educator*, 17(2), pp.24-30
4. Powis, D.A. (1994) 'Selecting medical students', *Med Educ*, 28, pp.443-8.
5. Willoughby, T.L., Gammon, L.C., Jonas, H.S. (1979) 'Correlates of clinical performance during medical school'. *J Med Educ*, 54, pp.453-6.
6. Stalnaker, J.M. (1951) 'Is there a science of personnel selection?', *Am J Public Health Nations Health*, 41, pp.191-7.
7. Abraham, D. (2016) 'Aptitude: A neat test for doctors', *The Times of India*, 15 June, p.3.
8. Medical Council (2014) 'A foundation for the Future : Guidelines for Medical Schools and Medical Students on Undergraduate Professionalism' Retrieved on August 2021 from <http://www.medicalcouncil.ie/news & publications>
9. GMC (2016) 'Achieving good medical practice : guidance for medical students'. General Medical Council and Medical Schools Council, Published 27 May 2016
10. Guiding principles of professionalism (2011) The university of Chicago Pritzker school of Medicine
11. Wilkinson, D., Zhang, J., Byrne, G.J., Luke, H., Ozolins, I.Z., Parker, M.H. and Peterson, R.F. (2008). 'Medical school selection criteria and the prediction of academic performance.' *Medical Journal of Australia* .188(6), pp.349-354
12. Schwartz, S. (2004) 'Admission to Higher Education Steering Groups', *Fair admission to higher education: recommendations for good practice*, Admissions to Higher

- Education, <http://www.admissions-review.org.uk/> (accessed 26 August 2021).
13. Connealy, C.J.(2010) 'Medical students' attitudes toward the medical college admission test', Master of Arts Thesis, The Graduate College at the University of Nebraska, Lincoln, Nebraska.
 14. Mathew, M.M. and Thomas, K.A. (2018) 'Medical aptitude and its assessment,' *The National Medical Journal of India*, 31(6), p. 356.
 15. Murden, R., Galloway, G.M., Reid, J.C. and Colwill, J.M. (1978) 'Academic and personal predictors of clinical success in medical school'. *J Med Educ*, 53(9):711-9 doi: 10.1097/00001888-197809000-00001.
 16. Mia, M.A., (2012) 'Reasons of Dropout and Repeated Failures (defaulters) of Medical Students in Bangladesh', MMed Thesis, Centre for Medical Education. Retrieved January, 2021.
 17. Hasan, M.T. et al. (2020) 'Depression, sleeping pattern, and suicidal ideation among medical students in Bangladesh: a cross-sectional pilot study' *.Journal of Public Health*, 30, pp. 465-473
 18. Shahab, F., Hussain, H., Inayat, A. and Shahab, A. (2013) 'Attitudes of medical students towards their career- Perspective from Khyber-Pukhtunkhwa', *Pak medical Assoc*, 63, pp.1017-21 (Available at www.jpma.org.pk/PdfDownload/4440.pdf (Accessed on 5 January 2021)
 19. Deressa, W. and Azazh, A. (2012) 'Attitude of undergraduate medical students of Addis Ababa university towards medical practice and migration, Ethiopia', *BMC Med Educ*, 12, p.68.
 20. Tsai, T-C., Lin, C-H., Harasym, P.H. and Violato, C.(2008) 'Students' perception on medical professionalism: the psychometric perspective', *Research express @ NCKU* 6(4), October 31,(net reference)
 21. Parthiban, N., Boland, F., Azim, D.H.F., Pawlikowska, T., O'Shea, M.T., Jaafar, M.H et al. (2021) 'Asian medical students' attitudes towards professionalism', *Medical Education Online*, 26. doi: 10.1080/10872981.2021.1927466.