Chattagram Maa-O-Shishu Hospital Medical College Journal
Volume 25, Issue 1, January 2026
https://doi.org/10.3329/cmoshmcj.v25i1. 89850

Original Article

Exploring Motivation of Learning Anatomy and Its Role in Academic Performance among Preclinical Medical Students in Bangladesh

Sharmista Bhattacharjee[1*]
Pragwa Permita Chakraborty[2]

[1]Department of Anatomy
Marine City Medical College
Chattogram, Bangladesh.

[2]Department of Physiology
Rangamati Medical College
Rangamati, Bangladesh..

*Correspondence to:
Dr. Sharmista Bhattacharjee
Associate Professor
Department of Anatomy
Marine City Medical College
Chattogram, Bangladesh.
Mobile : +88 01715 50 18 60
Email : sharmista201@gmail.com

Date of Submission : 19.10.2025
Date of Acceptance : 15.11.2025

www.banglajol.info/index.php/CMOSHMCJ

Abstract

Background: *Anatomy is a building block in medical education. High motivation is required to handle huge amount of information learnt and to achieve academic success. Motivation is often ignored on the belief that medical students are inherently motivated. The aim of this study is to determine the correlation between motivation in learning anatomy and academic performance.*

Materials and methods: *This was a cross sectional study. 192 medical students of 1st and 2nd year from two medical colleges in Bangladesh were included during the period January to June 2025. Data were collected though questionnaire and analyzed on SPSS. Means were compared using unpaired t-test and ANOVA. Pearson's correlation coefficients were calculated.*

Results: *All subscale and overall motivation scores were found to be satisfactory. Female students (p=0.00) those living at home (p=0.00) non-government medical students (p=0.00) students who studied for longer hours (p=0.00) and those whose mothers had higher education (p=0.01) exhibited significantly higher motivation. Academic scores were positively correlated with task value (r=0.41, p=0.00) intrinsic goal orientation (r=0.35, p=0.00) self-efficacy for learning and performance (r=0.23, p=0.03) and overall motivation (r=0.26, p=0.01) while showing a negative correlation with test anxiety (p=0.02).*

Conclusion: *The results may help educators understand and boost students' motivation and academic success in anatomy.*

Key words: Academic performance; correlation; Motivation.

INTRODUCTION

Motivation is a key factor in education that impacts the content, timing, and methods of learning.It is a crucial aspect of the educational process which has an influenceon the performance of both teachers and students.[1] It is also essential for career development.[2] Generating students' motivation has always been a challenge. Motivation can be generated extrinsically by monetary reward, accolades etc. It can be stimulated intrinsically by curiosity, genuine interest or enjoyment of learning a skill.[3] Intrinsic motivation is known to be associated with deep learning and improves academic performance. Stimulating intrinsic motivation is the basis of any learning endeavor.[4]

To keep up with the ever evolving medical science, the medical students need to become highly motivated, proactive, self-regulated learners. Self-Regulated Learning (SRL) is learners' ability to proactively select and use different strategies to achieve learning goals. SRL is linked to academic achievement and lifelong learning.[5]Self-regulated learners are confident in their ability to achieve success.[6] They are often highly motivated and display a high level of self-efficacy, which contributes to better academic performance and higher grades.[7]

Students usually become intrinsically motivated toward a task when they see it as beneficial (Task value) for their future. Self-regulated learners tend to show higher degree of autonomy in directing and monitoring their learning.[8] When teachers support the students' need for autonomy in learning process, it boosts intrinsic motivation and achievement, whereas external rewards and controls often reduce motivation and performance.[9] Motivation is proven to be a crucial predictor for academic success among medical students.[10]

Anatomy serves as the foundation for students' transition from basic sciences to clinical practice. The ultimate aim of studying anatomy is to gain knowledge of the body's structures, functions and relationships and to apply this understanding in clinical settings.[11] Despite its critical role as a building block, the time dedicated to teaching and learning anatomy is steadily declining worldwide.[12] As a result, there is a growing emphasis on self-regulated learning, where students set individual goals and modify their learning strategies to achieve them. Strong motivation is required to maintain a successful self-regulated learning.[13]

Students struggle with anatomy course because of the difficulty in handling large amounts of information.[14] Students frequently struggle to see the relevance of anatomy to clinical practice. As a result, when they later need to apply this anatomical knowledge in clinical settings, they often have trouble recalling the basic knowledge.[15] So, the teachers should highlight the relevance of learning anatomy and motivate the students to become efficient learners.[16] Insufficient motivational support from teachers and test anxiety results in unsatisfactory academic performance.[1,17] Motivation in health sciences is often overlooked, based on the belief that medical students are inherently motivated.[18] In this context, there is evidently a need for the educators to understand the relationship between motivation and academic performance. There is a clear knowledge gap in Bangladesh regarding this field. Therefore, the aim of this research is to determine the correlation between motivation in learning anatomy and academic performance.

MATERIALS AND METHODS

As part of this cross sectional study, all first and second year medical students from two consecutive academic sessions at Marine City Medical College, Chattogram and Rangamati Medical College, Rangamati were invited to participate during the period from January to June 2025. Out of 207 students, 192 agreed to participate. The participants were informed about the study's objectives and assured of anonymity. Ethical approval was obtained from the Institutional Review Board of Marine City Medical College. The Motivated Strategies for Learning Questionnaire (MSLQ) was administered at the beginning of lecture classes at different instances.

31 item motivation section was utilized from 81 item of the questionnaire. Each item is rated on a 7 point Likert scale, where '1' denotes 'not at all true of me' and '7' denotes 'very true of me'. These 31 items are subdivided into six subscales. Intrinsic goal orientation (4 items) is motivation driven by personal satisfaction. Extrinsic goal orientation (4 items) is motivation based onrewards. Task value (6 items) is students' views on relevance of course material. Control of learning beliefs (4 items) is students' belief in their ability to influence academic performance through effort. Self-efficacy for learning and performance (8 items) is confidence in one's ability to learn and succeed. Test anxiety (5 items) is worries influencing learning and performance.

The participants completed and returned the questionnaire on the spot within 30 minutes.The scores of anatomy term final examinations were collected and percentages of obtained marks were calculated. Data were analyzed using SPSS. Mean and standard deviation calculated for all subscales and overall motivation. Unpaired t-tests and ANOVA were used to compare means between two or more groups, respectively. In case of ANOVA, Turkey's post hoc test was done to find out the source of differencebetween groups.Pearson's correlation coefficients were computed to explore correlation between motivation and examination scores.

RESULTS

Table I displayed the mean scores of all the subscales and composite score of motivationamong preclinical medical students. The mean scores of all subscales and composite score were observed to be at moderate and satisfactory level. No subscales or the composite score showed low mean score (Score < 3).

Table I Descriptive statistics for motivation in learning anatomy (n=192) among preclinical medical students

Motivation □	Mean□	SD□	SEM
Intrinsic goal orientation□	5.46□	±0.98□	0.09
Extrinsic goal orientation□	5.67□	±1.34□	0.14
Task value□	5.55□	±1.16□	0.12
Control of learning belief□	5.83□	±1.04□	0.11
Self-efficacy for learning and performance□	4.72□	±1.07□	0.11
Test anxiety□	5.53□	±1.05□	0.11
Motivation (Composite score-Average of the subscale scores) □	5.37□	±0.69□	0.10·□

● SEM-Standard Error of Measurement, SD-Standard Deviation.

Table II presented the comparison of students' characterisctics in regards to their composite scores for motivation. The female students (p=0.00), students of non-government medical colleges (p=0.00) and the students livining with family (p=0.00)

https://doi.org/10.3329/cmoshmcj.v25i1. 89850 Volume 25, Issue 1, January 2026

showed significantly higher scores than male students, students of government medical colleges and students living in hostel. The composite score increased progressively higher and showed statistically significant differences between groups with higher educational status of mother (p=0.01) and longer hours of study (p=0.00). The composite scores of the students do not change significantly with the educational status of father (p=0.07) and socioeconomic status (p=0.12).

Table II Comparison between the composite scores of motivation in learning anatomy according to demographic factors

Demographic characteristics		n (192)	Mean	SD	p value	Post hoc test
Gender	Male	60	5.11	±1.77	0.00**	-
	Female	132	5.48	±1.69		
Type of medical college	Non-government	100	5.59	±1.51	0.00**	-
	Government	92	5.13	±1.89		
Accomodation	In hostel	102	5.23	±1.81	0.00**	-
	With family	90	5.53	±1.59		
Educational qualification of mother	Secondary (x_1)	46	5.13	±1.8	0.01*	x_1 vs. x_2=0.58
	Higher secondary (x_2)	64	5.24	±1.65		x_1 vs. x_3=0.06
	Bachelor (x_3)	50	5.35	±1.79		x_1 vs. x_4=0.01*
	Masters/ Ph.D.(x_4)	32	5.42	±1.62		x_2 vs. x_3=0.49
						x_2 vs. x_4=0.2
						x_3 vs. x_4=0.9
Educational qualification of father	Secondary (x_1)	30	5.13	±1.73		
	Higher secondary (x_2)	36	5.25	±1.77	0.07 ns	-
	Bachelor (x_3)	64	5.35	±1.66		
	Masters/ Ph.D.(x_4)	62	5.37	±1.76		
Hour spent for study	< 4 hours (x_1)	62	5.21	±1.82	0.00**	x_1 vs. x_2=0.03*
	4-6 hours (x_2)	98	5.38	±1.66		x_1 vs. x_3=0.00**
	> 6 hours (x_3)	32	5.63	±1.65		x_2 vs. x_3=0.01*
Socio-economic status	Lower middle (x_1)	54	5.46	±0.6	0.12 ns	x_1 vs. x_2=0.11 ns
	Upper middle (x_2)	90	5.3	±0.69		x_1 vs. x_3=0.75 ns
	Upper (x_3)	48	5.39	±0.78		x_2 vs. x_3=0.5 ns

● n-number of sample, SD-Standard Deviation, p<0.05*, p<0.01**, ns-not significant.

Table III presented the relationship between mean scores for six subscales and composite score of motivation with academic score of the students. The task valuesubscale was found to have moderate but significant positive correlation (r=0.41, p=0.00). Theintrinsic goal orientation (r=0.35, p=0.00), self-efficacy for learning and performancesubscales (r=0.23, p=0.03) and overall motivation (r=0.26, p=0.01) revealed small though significant positive correlations with the academic score. The academic scores showed significant and negative correlation (p=0.02) with test anxiety subscale.

Table III Correlations between six subscales scores of motivation and academic scores of preclinical medical students in anatomy

Motivation	r	p value
Intrinsic goal orientation	0.35	0.00**
Extrinsic goal orientation	0.03	0.78 ns
Task value	0.41	0.00**
Control of learning belief	0.12	0.26 ns
Self-efficacy for learning and performance	0.23	0.03*
Test anxiety	- 0.23	0.02*
Motivation (Composite score)	0.26	0.01*

● r, Pearson's correlation coefficient, p<0.05*, p<0.01**, ns-not significant.

Figure 1 showed the moderate but significant positive correlation between task value and academic performance.

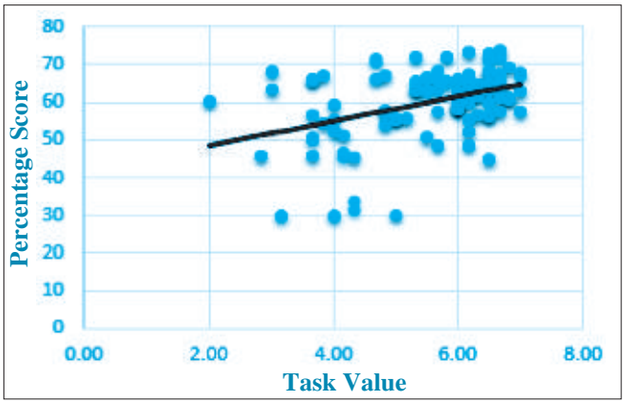

Figure 1 Scatter plot showing correlation between task value and academic performance

DISCUSSION

The academic performance of students continues to be a major concern for educators globally. Students who develop a habit of excelling early in their college years are likely to maintain that success throughout their educational journey.[19] Motivation is one of the key factors influencing academic performance.[10] Therefore, mean scores of six subscales and composite score of motivation were calculated in present study (Table I). The scores were moderate and satisfactory, indicating that the students demonstrated adequate motivation to learn anatomy. The results were consistent with those of Hamid & Singaram.[20] The results of the present study showed that the composite motivational scores of female students (p=0.00) are higher than male (Table II). This finding is aligned with Hamid & Singaram.[20] Conversely, Khattak et al. reported that the male students are more motivated than female students.[21] According to Edgar et al. female students are better at task management but experience more test anxiety.[10] The fear of failureand higher achievement motivation might inspire the female students to handle tasks more efficiently, which in turn, contributes to improved academic performance.

The students living with family (p=0.00) and students of non-government medical colleges (p=0.00) were found to have higher motivational scores than those living in hostel and studyingin government medical college. Khattak et al. found no significant differences in motivation of hostel dwellers and home dwellers which was dissimilar with our study.[21] Nearly all students require both external and internal motivation to sustain their learning endeavor. The students residing at home get prompt logistical support or often receive encouraging words from parents in a supportive household.[22] When parents provide resources, show interest, give attention, and offer emotional support, it can significantly boost students' motivation for learning.[23]

In present study, it was found that the composite scores of the students do not change significantly with the socioeconomic status (p=0.12). This finding wasconsistant with Almalki and dissimilar with a study on Chinese math students, which found that students' motivation to learn increases progressively with higher socioeconomic status.[24,25] The differences in academic disciplines, cultural attitude toward education, career expectations, educational support systems and research design might be the reasons for this discrepancy. The present study revealed progressively higher motivational score with higher educational status of mother (p=0.01). Dinietal also reported that parents' education level had a significant positive effect on students' motivation.[26] Parents with higher educational background motivate their children to set higher educational aspirations and to strive for achieving learning goals, which might be the reason for better academic achievement of their children.

In regard to motivation of non-government and government medical students, Khattak et al. reported the non-government medical school students to have higher intrinsic motivation than government medical school students, which was similar to present study.[21] The higher cost of education might increase the commitment and motivation of non-government medical students to achieve high academic performance to justify their financial investment.[27] Personalized attention and academic support might also boost their motivation to succeed.The composite score for motivation found to increase significantly (p=0.00) with the number of hours spent studying. Study time is linked to motivation, goal-setting and planning. Highly motivated students dedicate more time to assignments, whereas those less certain about pursuing a career in medicine engage in less study activity.[28]

The task value (Table III) subscale was found to have moderate but significant positive correlation (r=0.41, p=0.00) with academic performance. Some studies also found moderate correlation between the two variables while others found high correlation.[20,24] When students place conscious value on their academic tasks, they exhibit autonomy and achievement motivation, develop problem-solving skills, and ultimately achieve better academic results.[29] The teachers might assist students in recognizing the value of learning anatomy by demonstrating its relevance in real-world and linking current tasks to students' long-term goals.

The intrinsic goal orientation (r=0.35, p=0.00) and overall motivation (r=0.26, p=0.01)was found to have a positive correlation with academic performance in present study (Table III). Galal et al. also revealed similar positive correlations among those variables whereas Almalki found poor correlations.[30,24] High motivation results in better learning quality, more effective learning strategies, longer study hours, greater persistence, and improved academic performance. Low intrinsic motivation results in less effective learning and poorer outcomes.[18] Teachers can enhance students' motivation by fostering a supportive classroom environment, granting students autonomy in their learning, and providing encouragement along with constructive feedback.

The self-efficacy for learning and performancesubscale (r=0.23, p=0.03) was positively correlated with academic performance. The findings of Hamid & Singaram for medical students, Almalki for dental students and Galal et al. for pharmacology students were consistant with the present study.[20,24,30] Students who are intrinsically motivated to study medicine show greater participation, engagement, motivation and self-efficacy compared to those who enter the field under parental pressure. Allowing students to select their own career path can boost their motivation and self-efficacy, leading to improved academic performance.[31]

The academic scores displayed significant negative correlation (p=0.02) with test anxiety. Other studies also reported similar findings.[20,24,30] Conversely, Dawood et al. found no correlation between the two variables.[32] A moderate level of anxiety during exams can help motivate students and enhance their learning. However, excessive anxiety can lead to decreased test performance, poor concentration, adverse physiological reactions and negatively impact academic achievement.[32] Cognitive-behavioral strategies, relaxation training, time management techniques and study skills development can all effectively lower anxiety and enhance academic performance.[33]

LIMITATIONS

- The comparison groups had unequal sample sizes.
- It was limited to two institutions, which may affect generalizability of results.

CONCLUSION

In current study, mean scores for all subscales and the composite motivation score were found to be moderate and satisfactory. Female students, those from non-government medical colleges and students living with their families exhibited significantly higher overall motivation. Motivation levels increased progressively with the mother's higher educational status and longer study hours. Task value, intrinsic

https://doi.org/10.3329/cmoshmcj.v25i1. 89850 Volume 25, Issue 1, January 2026

goal orientation, self-efficacy for learning and performance, test anxiety and overall motivation were found to be the key factors affecting motivation. Academic motivation assessments can be a tool for the students to choose learning practices that align with their individual learning style and motivation. Educators can use such assessments to understand the students' motivation in learning anatomy and apply this insight to improve teaching practices and design targeted intervention that boost the students' motivation and academic success.

RECOMMENDATION

- Future studies may include a larger sample and more medical colleges for generalizability of results.

ACKNOWLEDGEMENT

We extend our gratitude to all the members of Departments of Anatomy and Physiology at Marine City Medical College, Chattogram and Rangamati Medical College, Rangamati. Special thanks to the medical students for their participation and cooperation.

DISCLOSURE

The authors declared no competing interest.

REFERENCES

1. Moreira-MoralesD &García-Loor M. Motivation in academic performance. International research journal of management, IT and social sciences. 2024;11:30-38.
2. Owolabi JO, Tijani AA, Shallie PD. An assessment of the level of motivation towards the study of anatomy among students in south- western Nigerian universities. Res J Health Sci. 2013; 1(1):79–89.
3. Duan H, Fernández G, van Dongen E, Kohn N. The effect of intrinsic and extrinsic motivation on memory formation: insight from behavioral and imaging study. Brain StructFunct. 2020; 225(5):1561–1574.
4. Chaudhary JD (2019). Stimulating Intrinsic Motivation in Millennial Students: A New Generation, a New Approach. AnatSciEduc 0:1–22. DOI: 10.1002/ase.1884.
5. Pintrich PR, Smith DAF, García T, McKeachie WJ. A manual for the use of the motivated strategies for learning questionnaire (MSLQ). Ann Arbor, MI: University of Michigan. 1991.
6. TareenH, Haand MT, MuhammadiA, Zhang B.Self-regulated learning and motivational beliefs: Findings from a survey of EFL undergraduates in Afghanistan. Issues in Educational Research, 2022;33(2):781-797.
7. Honicke T & Broadbent J. The influence of academic self-efficacy on academic performance: A systematic review. Educational research review. 2016;17:63-84.
8. El-AdlA&Alkharusi H. Relationships between self-regulated learning strategies, learning motivation and mathematics achievement. Cypriot Journal of Educational Science. 2020;15(1):104–111.
9. Ryan RM&Deci EL. Self-determination theory and the facilitation of intrinsic motivation, social development and well-being. American Psychologist. 2000;55:68–78.
10. Edgar S, Carr SE, Connaughton J, Celenza A. Student motivation to learn: Is self-belief the key to transition and first year performance in an undergraduate health professions program? BMC Med Educ. 2019;19(1):111.
11. Zhang JF, Zilundu PLM, Zhou L, Guo GQ. Supplementary regional anatomy teaching by surgeons enhances medical students mastery of anatomical knowledge and positively impacts their choice of future career. 2020; J Surg Educ., 77(5):1113–1120.
12. Rockarts J, Brewer-Deluce D, Shali A, Mohialdin V, Wainman B. National survey on Canadian undergraduate medical programs: the decline of the anatomical sciences in Canadian medical educa- tion. AnatSci Educ. 2020; 13(3):381–389.
13. Yu B. Self-regulated learning: A key factor in the effectiveness of online learning for second language learners. 2020. Front. Psychol. 13:1051349.
doi: 10.3389/fpsyg.2022.1051349.
14. Joseph MA, Roach EJ, Natarajan J, Karkada S, Cayaban ARR. Flipped classroom improves Omani nursing students perfor- mance and satisfaction in anatomy and physiology. BMC Nurs. 2021; 2(20):1.
15. Rafai N, Lemos M, Kennes LN, Hawari A, Gerhardt-Szép S, Classen-Linke I. Anatomy meets dentistry! Linking anatomy and clinical practice in the preclinical dental curriculum. BMC Med Educ. 2016; 25(16):305.
16. Dempsey AMK, Nolan YM, Lone M, Hunt E. Examining Motivation of First-Year Undergraduate Anatomy Students Through the Lens of Universal Design for Learning (UDL): A Single Institution Study. Medical Science Educator. 2023. Available at https://doi.org/10.1007/s40670-023-01823-x.
17. Ahmad S &Hussain A. Relationship of Academic SE to Self-Regulated Learning, SI, Test Anxiety and Academic Achievement. International Journal of Education. 2012;4(1):12-25.
18. Pelaccia T &Viau R. Motivation in medical education. Medical Teacher. 2017;39(2):136–140.

REFERENCES

19. Al Husaini Y &Shukor NSA. Factors Affecting Students' Academic Performance: A review. 2023;12:284-294.
20. Hamid S & Singaram V. Motivated strategies for learning and their association with academic performance of a diverse group of 1st-year medical students. AJHPE. 2016;8(1):104-107.
21. Khattak AF, Mahsood N, Khattak M, Qazi M, Hassan B, Gillani H. Motivated to Succeed: A Comparative Analysis of Undergraduate Medical Students in Public And Private Medical Schools. J Khyber Coll Dentistry. 2023;13(4):51-58.
22. Nadya Z &Pustika R. The Importance of Family Motivation for Student to Study Online During the Covid-19. Journal of English Language Teaching and Learning (JELTL). 2021;2(2):86-89.
23. Buoy MM. The Influence of P The Influence of Parental Involvement on Academic Motivation and Achievement in College Student [Honors Thesis]. Eastern Illinois University. 2013:1-23. https://thekeep.eiu.edu/cgi/viewcontent.cgi?article=1044&context=honors_theses.
24. Almalki SA. Influence of Motivation on Academic Performance among Dental College Students. Open Access Maced J Med Sci. 2019;7(8):1374-1381.
25. Liu R & Chiang YL. Who is more motivated to learn? The roles of family background and teacher-student interaction in motivating student learning. J. Chin. Sociol. 2019;6(6).
26. Dini ES, Wardi Y, Sentosa SU. The Influence of Parent's attention, Parents Educational Background, Learning Facilities and Learning Motivation toward Student Learning Achievement. Advances in Economics, Business and Management Research. 2019;64:308-316.
27. Barrow L & Rouse CE. Financial Incentives and Educational Investment: The Impact of Performance-based Scholarships on Student Time Use. Education Finance and Policy. 2018;13 (4): 419–448.
28. Wilkinson TJ, Wells JE & Bushnell JA. Medical student characteristics associated with time in study: is spending more time always a good thing? Medical Teacher.2007;29:106–110.
29. Ncororo MR, Koinange WC & Muriithi IA. Task value as a predictor of academic achievement among form three students in Meru County, Kenya. International Journal of Education and Research. 2022;10(4):15-24.
30. Galal S, Vyas D, Ndung'u M, Wu G, Webber M. Assessing Learner Engagement and the Impact on Academic Performance within a Virtual Learning Environment. Pharmacy (Basel). 2023;11(1):36.
31. Bin Abdulrahman KA, Alshehri AS, Alkhalifah KM, Alasiri A, Aldayel MS, Alahmari FS et al. The Relationship Between Motivation and Academic Performance Among Medical Students in Riyadh. Cureus. 2023;15(10):1-9.
32. Dawood E, Al Ghadeer H, Mitsu R, Almutary N, Alenezi B. Relationship between Test Anxiety and Academic Achievement among Undergraduate Nursing Students. Journal of Education and Practice. 2016; 7(2):57-65.
33. Chakraborty A. Exploring the Root Causes of Examination Anxiety: Effective Solutions and Recommendations. International Journal of Science and Research. 2023;12:1096-1102.

https://doi.org/10.3329/cmoshmcj.v25i1. 89850 Volume 25, Issue 1, January 2026