

Association between Study Habits with Academic Performance of Undergraduate Medical Students: A Comparative Analysis in a Medical College of Eastern Nepal

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ABSTRACT

Background

Researchers have shown that study habits are important factor which influences the academic performance of students. Moreover, understanding the relationship between study habits and academic performance can help to identify strategies to enhance the academic success of medical students. The purpose of this study is to analyze the association between study habits with the academic performance among undergraduate medical students and compare the study habits of high, average and low achieving students as application of effective learning strategies may be helpful in achieving better academic outcomes.

Objective

To investigate the relationship between the study habits and academic performance among medical students.

Method

A cross-sectional analytical study was conducted among the undergraduate students of Nobel Medical College Teaching Hospital. A pre-tested questionnaire was given to the students after obtaining ethical clearance. Data was collected and entered in MS Excel and was statistically analyzed using SPSS 16. Data were analyzed by descriptive and inferential statistics. Statistical comparison was conducted using Chi-square test and ANOVA. Level of statistical significance was set at $p = 0.05$.

Result

A total of 199 students participated in the study. Majority of the students were average performers. A strong association between the study habits and academic performance was found in our study with a significant $p < 0.001$ (Chi-square test). Mean value of study habits was compared between academic performances (high vs average vs low performers) using ANOVA, four of our study habits had significant association between three group with a significant p value < 0.05 .

Conclusion

This study highlights a significant association between study habits and academic performance of medical students. Students who adopt structured and consistent study routine tend to achieve higher academic grades and success than those with less disciplined habits. This research underscores the importance of effective time management, active learning techniques and regular reviews and revision along with feedbacks from exams and assessment as the key components of successful study habits.

KEY WORDS

Academic performance, Education, Medical students, Undergraduate

INTRODUCTION

Study habits of a students and their overall attitude towards the curriculum and subjects under study governs their learning and academic performance.^{1,2} Educational psychologists have argued that there are many determinants of academic performance and study habits is one of the very important determinants. In order for students to reach at the peak of academic performance a constant and deliberate practice of study habits is required.³ One of the major factors, other than low intellectual capacity, resulting in poor academic performance is poor study habits. Many innately intelligent students cannot perform well in the academics, mainly due to poor study orientation and habits.⁴

Undergraduate medical education is facing many new challenges, as upon graduation, medical students are expected to have developed enough competencies in medical knowledge and clinical skills. Globally, students with top academic performance and high intellectual capacity usually opt to study medicine. However, once they get enrolled in medical schools, their academic performance varies widely. Researches have shown that study habits are important factor which influences the academic performance of students. Moreover understanding the relationship between study habits and academic performance can help identify strategies to enhance medical students academic success. By pinpointing effective study habits medical school can better support students in achieving their educational goals. Despite the importance of these factors, there is a lack of comprehensive research exploring the association of study habits with academic performance of medical students in our country.

Therefore, this study aims to analyze the association between study habits with the academic performance among undergraduate medical students and compare the study habits of high, average and low achieving undergraduate medical students as application of effective learning strategies may be helpful in achieving better academic outcomes.

METHODS

A cross-sectional comparative study was conducted at Nobel Medical College Teaching Hospital, Biratnagar, Nepal among First year MBBS and BDS and Second year MBBS and BDS students from August 2024 to July 2025. A survey comprising of pre-tested questionnaire was sent to the students through google forms after explaining the purpose and objectives of the study verbally to each batch of the students. We did a validity and reliability test to determine the efficacy of the questionnaire. Then we did a pilot study of 25 medical students to check for the acceptance of questionnaire. Cronbach's alpha was 0.78 for questionnaire going to be used which means that it is acceptable level for the implementation of the questionnaire.

After obtaining ethical clearance from the institutional review committee of Nobel Medical College Teaching Hospital, a verbal consent was taken and all students willing to fill up the questionnaire were included in this study. Students were requested not to exchange their thoughts about each question. Students were assured about maintaining the confidentiality of their information and their responses. A total of 199 students participated for the study. A survey comprising of pre-tested questionnaire was sent to the students through google forms after explaining the purpose and objective of the study verbally to each batch of the students. After collecting the data, the questionnaire was again tested for reliability and Cronbach's Alpha was 0.8.

The marks obtained in the final university exams of MBBS and BDS first year and MBBS and BDS second year will be taken as the marker of academic performance. Academic performance of participants was categorized into three groups based on university final examination scores: high performers (> 70%), average performers (60–69%), and low performers (< 60%). Study habits were assessed using a 21-item questionnaire with responses recorded on a three-point Likert scale: 2 (Almost Always), 1 (Sometimes), and 0 (Never). The total study habit score ranged from 0 to 42 and was converted into percentage scores, which were interpreted as good (76–100%), moderate (51–75%) and poor (0–50%) study habits. Descriptive statistics were used to summarize the data. The Chi-square test of independence was applied to examine the association between individual study habits and academic performance categories. Additionally, one-way ANOVA was used to compare the mean study habit scores among high, average and low performers, followed by Bonferroni post-hoc analysis where significant differences were observed. All statistical analyses were performed using SPSS Statistics and a p-value of <0.05 was considered statistically significant.

RESULTS

An analytical cross-sectional study was conducted among 199 medical students enrolled in the year 2021 AD and 2022 AD and who had appeared the university final examination conducted by Kathmandu University. Majority of the participants were MBBS students: 173 students and rest from the BDS stream: 26 students. Among a total of 199 students, there were 109 male students and 90 female students together from MBBS and BDS stream. Among 199 students, a total of 143 students passed the university exam and 56 students could not pass their university exam at their first attempt. Out of 199 students, majority (84.42%) of the students had more than 80% attendance and none of the students had less than 50% attendance.

Among 199 students who appeared for the final university exam, majority of students were average performers (59.9%), whereas only 18.6% were high performers. The

mean study habit score was highest among high performers and lowest among low performers (Table 1).

Table 1. Academic Performance and mean study habit score among different groups

	Males	Females	n(%)	Study habit score (Mean $\pm$ SD)
High performers	23	14	37 (18.6%)	27.56 $\pm$ 5.83
Average performers	52	67	119 (59.8%)	26.89 $\pm$ 5.79
Low performers	34	9	43 (21.6%)	25.93 $\pm$ 5.53
Total	109	90	199 (100%)	26.81 $\pm$ 5.95

The mean study habit score was higher in females than in males (Table 2).

Table 2. Study habit score among gender in our study participants

Gender	Study habit score (Mean $\pm$ SD)
Males	25.86 $\pm$ 6.33
Females	26.34 $\pm$ 5.54

Table 3. Categorization of the study habits among the participants

Study habits Category/Score %	Number of students, n (%)
Good (76-100%)	43 (21.60)
Desirable (51-75%)	117 (58.80)
Poor (0-50%)	39 (19.60)

Table 4. ANOVA to compare means of three groups (High performers vs average performers vs low performers)

Attributes	High performer (n=37)	Average performer (n=119)	Low performer (n=43)	F Value	Significance
Do you take advantage of the few minutes right before and after class to review what was covered during the previous class session or reading assignment?	1.41 $\pm$ 0.498	1.19 $\pm$ 0.541	1 $\pm$ 0.577	5.576	0.004
Do you plan ahead for tests, beginning to review several days or weeks ahead of time, rather than the night or two before the exam?	1.54 $\pm$ 0.650	1.52 $\pm$ 0.636	1.19 $\pm$ 0.699	4.58	0.011
Do you discuss with your subject teachers or mentors to seek clarification for challenging concepts and clarification?	1.16 $\pm$ 0.553	0.98 $\pm$ 0.596	0.77 $\pm$ 0.611	4.497	0.012
Do you adapt your study strategies based on feedback from ex-ams and assessment?	1.62 $\pm$ 0.594	1.46 $\pm$ 0.594	1.28 $\pm$ 0.549	3.45	0.033

Table 5. Common study habits of high academic performers

Study habits	Score	Percentage
Do you adapt your study strategies based on feedback from exams and assessment?	60	81.08
Do you keep up with day to day assignments (practicals)?	59	79.72
Do you study at the same time and same place regularly?	59	79.72
Do you create concept maps, diagrams, or mnemonic to aid in memorization and understanding?	58	78.37
Do you plan ahead for tests, beginning to review several days or weeks ahead of time, rather than the night or two before the exam?	57	77.02
Do you correctly anticipate how long preparation for exams will take to complete?	55	75.00
Do you keep up with assigned readings?	55	75.00
Do you make notes while studying regularly?	54	72.97
Do you take advantage of the few minutes right before and after class to review what was covered during the previous class session or reading assignment?	52	70.27

A majority of our study participants had moderate study habits while few students had poor study habits based on the study habit score (Table 3).

Chi-square test showed a statistically significant association between academic performance study habits variables used in our study ($p < 0.001$). ANOVA was used to compare the mean value of study habits between the three groups of academic performance (high vs average vs low performers), where four of our study habits had significant association between three groups (Table 4).

Post Hoc (Bonferroni)

Ques 1: Significant for Higher performer Vs Low performer ($p = 0.003$)

Ques 2: Significant for High performer Vs Low performer ($p = 0.049$) and average performer Vs low performer ($p = 0.013$)

Ques 3: Significant for Higher performer Vs Low performer ($p = 0.010$)

Ques 4: Significant for Higher performer Vs Low performer ($p = 0.029$)

Post Hoc analysis showed that the above mentioned four study habits are predictive of the academic performance as they have significant positive co-relation between different groups.

The most common study habit adopted by the high academic performers is tabulated based on the score of the individual study habits. The study habit score of more than 70% is considered as the most adopted study habits (Table 5).

DISCUSSIONS

Researchers are conducting studies for the development of all-encompassing techniques that effectively improve the academic performance of individuals which are called study skills or study habits. Study habits refers to mood which is adopted by students as a study plan apart from the lecture attendance for knowledge purpose on any topic. Moreover these habits vary from individual to individual depending on their cognitive capability and personal preferences. These study habits assist individuals in apprehending information more readily and determine their performance in examinations.⁵

Association between study habits and academic performance had been studied extensively in the recent years and variety of results was reported in different literatures. Many studies reported a significant positive correlation between student's study habits and their academic performance, however many studies have also reported no such correlation between study habits and academic performance.^{4,6} However, academic achievement is mostly a result of good study habits.

We conducted this study among medical students of Nobel Medical College Teaching Hospital. There were 109 male students and 90 female students who participated in the study. Among the study participants, 143 students were able to pass the university exam in first attempt whereas 56 students did not pass the exam. In our study, we found a higher total study habit score among females (26.34 ± 5.54) compared to males (25.86 ± 6.33) (Table 2). This finding of our study was consistent with the study done by Jafri et al. where females had a higher mean score for study habits.⁷ Another similar study also showed that females have better study habits and hence academic achievements of female students is higher than of the male students.⁸ Another study where a comparison of study skills is done between genders, male students had lower score of study habits than female students with a significant difference indicating a better condition of female students in study habits compared with male students and this finding was also in support of our study.⁹ Another study which showed a significant gender difference between study habits among males and females ($t = -3.07$, $p < .05$), is also in support with the findings of this study.³

In our study, majority of the students ($n=119$, 59.8%) of the students were average performers. This finding of our

study was consistent with the findings of the study done by Looyeh et al. where 67.25% of the students were average performers.¹⁰ In our study the mean study habits score was highest among the high academic performers with a mean $\pm$ SD of 27.56 ± 5.83 , with the average performers having a mean score of 26.89 ± 5.79 and the low performers with a mean score of 25.93 ± 5.53 (Table 1). This finding of our study was consistent with the findings of the study done by Bibi et al. which shows that high achievers have better study habits and more positive study attitudes than low academic achievers.¹¹

The highest number of participants had desirable study habits score ($n=117$, 58.80%) (Table 3). This finding of our study was in accordance with the findings of a systematic review and meta analysis done by Gilavand and Emad which also showed the mean study habit score within the desirable or moderate range.¹² A study done by Alimohamadi et al. revealed that correct study habits had a positive effect on the academic performance of nursing students at the Hamadan University of Medical Sciences in western Iran.¹³

We performed chi-square test to find the association between the academic performance and study habits of our students. There was a significant association between all the study habits and academic performance of the students ($p < 0.001$). In the study conducted by Sirohi, poor study habits were reported as one of the biggest causes of the poor academic performance in the studied samples. Poehler and colleagues also found a positive and significant relationship between the study habits and the academic achievement.⁶ When we compared the association between three groups of academic performers using ANOVA, we found a strong positive association between groups among four study habits. Post Hoc analysis showed that the above mentioned four study habits are predictive of the academic performance as they have significant positive co-relation between different groups. Planning ahead for tests, beginning to review several days or weeks ahead of time, rather than the night or two before the exam was the most significantly co-related study habits among all the three groups of academic performers with a $p < 0.011$. This finding of our study was similar to the study done by Lelis et al. where reviewing the lectures on the same day of class taken and planning ahead of time was the most successful study habits among the high performers.¹⁴ Consistent with the finding of our study, goal setting for better academic performance was found to be positively co-related in a study done by Abdulrahman et al.¹⁵ Also, discussion with the subject teachers to clarify challenging concepts ($p < 0.01$) and adapting study strategy based on feedback from exam and assessment were the strongly co-related study habits with a strong positive co-relation, $p < 0.03$ (Table 4).

According to Ahmad et al. time management is crucial for students, especially those in higher education, as it improves their output and academic performance.¹⁶ If the student focuses on the time management, then only they can comply with the requirements of medical school. Time management is how the students learn coping mechanisms that enable them to balance competing demands in their studies according to their allotted time.¹⁶ In our study, the most adopted study habits by the high academic performers were mainly related to organizing the study materials, anticipate the preparation time and time management (Table 5). In our study, time management skills are well adopted by the students who are high academic performers (Table 5). Students typically lack the organizational skills to prioritize work, which leaves them unfocused, indecisive, and task averse. It is noted that successful students are skilled time managers, which was consistent with the findings of our study.¹⁷ Medical students are faced with a large amount of information that is difficult to organize and learn, and requires knowledge and application of study skills. Studies suggests that learners who do not have enough information about study strategies do not attain effective and stable learning and thus will not have an appropriate level of academic achievement.⁷ Our study showed that the students with better academic achievements use appropriate study habits more than those with lower academic achievements as the study habit scores are higher in high performers (27.56 ± 5.83) than in low performers (25.93 ± 5.53) (Table 1).

In our study, the most adopted study habit by the students with high academic performers were study strategies based on feedback from exams and assessment with an average score of 60 (81.08%) and keeping up with the day to day assignments with an average score of 59 (79.72%). This means that the students had a high level of goal setting, which means that they have a clear direction in their studies and they possess the skill that is essential for academic success because they can persevere despite the obstacles to achieve the set goals. This remarkable finding suggests that students demonstrate a high level of goal-setting. Students must be motivated towards their goals as motivation leads to encouragement to develop good study habits. When examining goals through the lens of the educational environment, goals contribute to student's motivation as they work to satisfy the demands they place on themselves.¹⁸

Since academic performance is considered as a predictor of success in a person's career, it is important to pay attention to this issue and apply appropriate strategies to improve the study habits of students. Meanwhile, because of the high sensitivity of future professions in medical students, and the need for comprehensive learning of the curriculum, paying attention to the status of study habits and its promotion is critically important.

We found out the most common study habits adopted by the high performers and found that among the study habits we investigated, nine of the study habits were the common ones. Skimming of lectures before the assigned class and going through the previous lectures was one of the study habits adopted by high performers in our study (Table 5). This finding of our study was consistent with the study done by Aljaffer et al. where for skimming lectures beforehand, an appreciable agreement was noted by high GPA students.¹⁹

Students with superior study habits have more active and dynamic learning styles with better retaining and memory capacities. People who do not have enough information on study strategies will not have effective and sustainable learning practices, despite all the time that they spend studying. In the study by Ahmad et al. poor academic performance is associated with poor time management approach to study, excessive use of social networking and poor study habits.¹⁶ Since medical students work with a great deal of information during their studies, they need to use new strategies for organization and learning. Therefore, considering the importance of study habits in academic performance and achievement, and as academic performance has an ultimate decisive impact on the career and the education of people, planning and attention are necessary to improve the methods and study habits of students.¹⁰

The cross-sectional study design limits the ability to establish a causal relationship between study habits and academic performance; only associations can be inferred. Also, the study was conducted in a single medical college among MBBS and BDS students, which may limit the generalizability of the findings to students from other medical institutions or universities in Nepal. Although the questionnaire demonstrated acceptable internal consistency, the study evaluated study habits at a single point in time, which may not accurately reflect changes in student's learning behaviors throughout the academic year. Future multicenter longitudinal studies involving larger and more diverse samples are recommended to better establish temporal relationships and identify modifiable factors influencing academic performance among medical students.

CONCLUSION

The present study demonstrated a significant association between study habits and academic performance among undergraduate medical students. Students with higher academic achievement exhibited better overall study habit scores compared to average and low performers. Effective study practices such as advance planning for examinations, regular review of study materials, time management, adapting study strategies based on feedback, maintaining

day-to-day assignments, and seeking clarification from teachers were more commonly observed among high academic performers. Female students also showed comparatively better study habit scores than male students.

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