



Influence of Study Habits, Classroom Attendance, and Socioeconomic Factors on Undergraduate Academic Performance

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Received: 16/07/2026 Revised: 20/09/2026 Acceptance: 02/02/2026 Published: 24/10/2026

ABSTRACT

Undergraduate academic performance is linked to learning behavior, attendance, and socioeconomic status. This information is valuable for improving the quality of education and developing student support programs. This research was carried out to examine the association between study habits, attendance, and undergraduate academic performance. This study uses secondary data and a quantitative and cross-sectional research methodology. The variables considered include daily study time, game-playing, attendance at lectures, family income, family environment, work and grade point average (GPA). Descriptive statistics, correlation analysis, comparison of groups and multiple linear regression analysis were done to test associations. The results revealed that the variables which had positive correlation with academic performance were attendance at lectures ($p = 0.664$, $p < 0.001$) and study preparation daily ($p = 0.377$, $p < 0.001$). GPA had negative correlation with gaming time ($p = -0.412$, $p < 0.001$). The lack of correlation was established between family income and residential background. However, employment was negatively correlated with GPA after controlling for the effect of family income. In total, 56.1% of variance in the academic performance can be explained by the model. Thus, the results reveal that it is very important for the undergraduate students to attend classes and prepare themselves for the educational process. Universities need to encourage students to study, increase attendance and develop academic support programs for those who work. It is recommended to conduct more research in different fields.

Keywords – Study Habits; Classroom Attendance; Socioeconomic Factors; Academic Performance; Undergraduate Students.



1. Introduction

Academic achievement is among the major criteria of student success in higher education and relates to both learning outcomes and the degree of academic involvement as well as knowledge and skills acquired. There are several factors that make up the concept of academic success at the university level such as individual learning practices, performance in class, social and economic background, and the context of education. The transition of students to higher education is accompanied by changes in learning responsibility, time management, and other issues that can influence their performance. Existing literature has emphasised the importance of student factors in relation to academic performance in the context of higher education (Akimov et al., 2024). Additionally, the educational resources, institutional support, and personal circumstances are also linked to academic performance, especially in resource-limited settings (Kassaw & Demareva, 2023). The academic and contextual factors further identified through the research conducted in universities are associated with variation in student achievement (Mulaudzi, 2023). Awareness of these relationships is vital to creating powerful learning strategies and fostering students' achievement (Wang & Chen, 2025).

Study habits are the regular learning behaviors of students for understanding academic materials, preparing for exams, and meeting all the academic obligations. The general principles of good study habits comprise frequent revising, being prepared, organizing the process of learning, and managing academic activities properly. The connection between study habits and personality traits is one of the areas of research for medical students as essential determinants of academic success (Aljaffer et al., 2024). Personal traits, as well as institutional and socioeconomic environment, can also influence the formation and development of the process of learning (Jacob, 2022). Other studies conducted further in the field of study habits and achievement among university students focused on the role of study habits in the achievement of academic success (Jaffar et al., 2024). But there may be differences in daily preparation time, recreational activities, and technology use that affect differences in academic achievement, which should be explored.

Another aspect of undergraduate education, classroom attendance is important because it gives students the chance to work directly with the teacher as well as to discuss and clarify any challenging concepts. Pupils who are regularly at school can have an ongoing access to the coursework and have a better relationship with the learning activities. Previous studies on higher education students have explored the link between students' attendance in class and their academic performance, which studies revealed that attendance is an important academic factor (Mia et al., 2025). Academic outcomes could also be affected by factors beyond the classroom that impact student engagement and learning (Suleiman, 2023). However, students' attendance cannot necessarily determine their achievement; the individual preparation and socioeconomic factors also affect the achievement gap.

Differences in socioeconomic factors affect students' education via financial resources, learning



opportunities, family circumstances, and academic supports. Time and resources available for academic activity may be influenced by family income, residential background and employment responsibilities. The association between socioeconomic status and family characteristics and student achievement has been explored (Ali et al., 2023). Likewise, a study of socioeconomic factors and study habits has been examined as factors affecting students' educational performance in secondary schools (Ariyo-Edu et al., 2024). Private university students also have provided evidence that socioeconomic factors are relevant in academic performance, which justifies the study of their relationship in the academic performance of students in private universities. (Rahman et al., 2023).

While past research has assessed each predictor of academic success, it is still valuable to understand their joint associations. Multivariable statistical methods have proven to be helpful for exploring factors linked to student achievement (El Jihaoui et al., 2025). Recent advances in academic performance prediction have also highlighted the importance of identifying relevant student characteristics (Johora et al., 2025). Predictive methods, however, do not always yield simple interpretations of the connections between educational behaviours and socioeconomic situations. Additionally, previous studies on academic achievement highlight the role of various factors (Suleiman et al., 2024). In the present study, based on secondary student records, the relationships between study preparation, attendance, family income, residential background, and employment status with undergraduate academic attainment are examined. The results can be helpful in planning education and helping students.

Research Objectives

- To examine the association between study habits, particularly daily study preparation and technology-related activities, and undergraduate academic performance.
- To assess the relationship between classroom attendance and academic achievement among undergraduate students.
- To evaluate the associations of socioeconomic factors, including family income, residential background, and employment status, with undergraduate academic performance.

2. Materials and Methods

2.1. Study Design and Data Source

The research design of the present study was quantitative, cross-sectional, and secondary data was used to investigate the relationship between study habits, attendance, and socioeconomic factors with undergraduate academic achievement (Hasan et al., 2024). There were 493 student observations in the data file, ResearchInformation3.csv, which included 16 variables. Grade point



average (GPA), overall, was the main indicator for student performance. The study was based on record data, no experimental intervention or interaction with the participants was performed.

2.2. Study Population and Sample Selection

In this study, 493 undergraduate student records from various academic departments and semesters were included. Most students were from Computer Science and Engineering (443; 89.9%) with the rest from Business Administration, English, Economics, Political Science and other fields. No missing values, or complete duplication of records were found, so all observations were retained. No special sampling was used, and all the records available were used. When considering the generalizability of the findings, the unequal representation in the departments was considered.

2.3. Study Variables and Measurements

Overall academic performance, based on cumulative GPA (Overall), was the dependent variable, with a supplement academic indicator GPA of last semester (Last). The preparation time, gaming time, and computer-related activity scores were used to determine study habits. The activities were grouped as preparing for the game (0–1 hour, 2–3 hours, more than 3 hours), and computer activities were measured using a five-point numerical scale. Classroom attendance was classified into below 40%, 40–59%, 60–79%, and 80–100%. Socioeconomic factors were family income (low, lower middle, upper middle, high), place of origin (village or city) and having a job (yes or no). Other factors were gender, department, semester, secondary and higher secondary examination performance, English proficiency and extracurricular activities.

2.4. Data Preparation and Quality Assessment

Student records were checked for missing or double values, incorrect categories, and coding errors. There were 493 complete observations for 16 variables without fully duplicated observations. The family income categories were standardized, and minor inconsistencies in the answers given were corrected. The categorical data were grouped as they were originally grouped, and GPA and examination scores were kept as numerical data. Attendance, preparation time, and duration of game play were all ordered categorical variables. The distribution of variables was examined using descriptive statistics, with no values being artificially or estimated.

2.5. Statistical Analysis

Student characteristics, study habits, attendance, socioeconomic, and academic performance were summarized using descriptive statistics. The categorical variables were given frequencies and percentages, and the numerical ones were given as mean and standard deviation. For assessing relationships involving ordinal variables, Spearman correlation was used. Appropriate group comparisons were done using Kruskal–Wallis and Mann–Whitney U tests. To explore the



adjusted relationships of study habits, attendance and socioeconomic variables to overall GPA, multiple linear regression was used. A p value of < 0.05 was considered statistically significant and 95% confidence intervals are provided when appropriate.

2.6. Ethical Considerations

Secondary data pertaining to student performance was utilized without any recruitment or interventions with study participants. There was no direct identification of persons (e.g., Student Name or Contact information) in the records available. The findings were presented in an aggregated form ensuring confidentiality. The data was then utilized for academic research, with an awareness of not being able to draw potentially erroneous conclusions regarding the education or socioeconomic status of students. The need for ethical approval will be dependent upon the institutional guidelines and permissions for secondary data use.

3. Results

This study analysed 493 student records of undergraduates to determine the relationship between socioeconomic factors, classroom attendance and study habits and academic achievement. Descriptive statistics, group comparisons, multiple linear regression and Spearman's correlation were used during the analysis. The overall GPA was the key measure for academic achievement. The results are given in six tables and five figures.

3.1. Demographic and Academic Characteristics of Undergraduate Students

The demographic and socioeconomic characteristics of the participants are shown in table 1. Of the 493 students, 328 (66.53%) were male and 165 (33.47%) were female. Most of the participants were Computer Science and Engineering department (89.86%) and 10.14% were from other departments. The percentage of students from villages was 56.80% and 43.20% from cities. The majority (93.10%) of the students said they had no work. The overall mean GPA was 3.19 ± 0.59 , while the mean previous-semester GPA was 3.16 ± 0.64 .

Table 1. Demographic and Socioeconomic Characteristics of Undergraduate Students (N = 493)

Characteristics	Category	Frequency (n)	Percentage (%)
Gender	Male	328	66.53
	Female	165	33.47
Department	Computer Science and Engineering	443	89.86
	Other departments	50	10.14



	Hometown	Village	280	56.80
		City	213	43.20
	Employment status	Employed	34	6.90
		Not employed	459	93.10
	Family income	Low	74	15.01
		Lower middle	180	36.51
		Upper middle	110	22.31
		High	129	26.17

The demographic distribution is further illustrated in Figure 1, showing the predominance of male students, village residents, and students without employment.

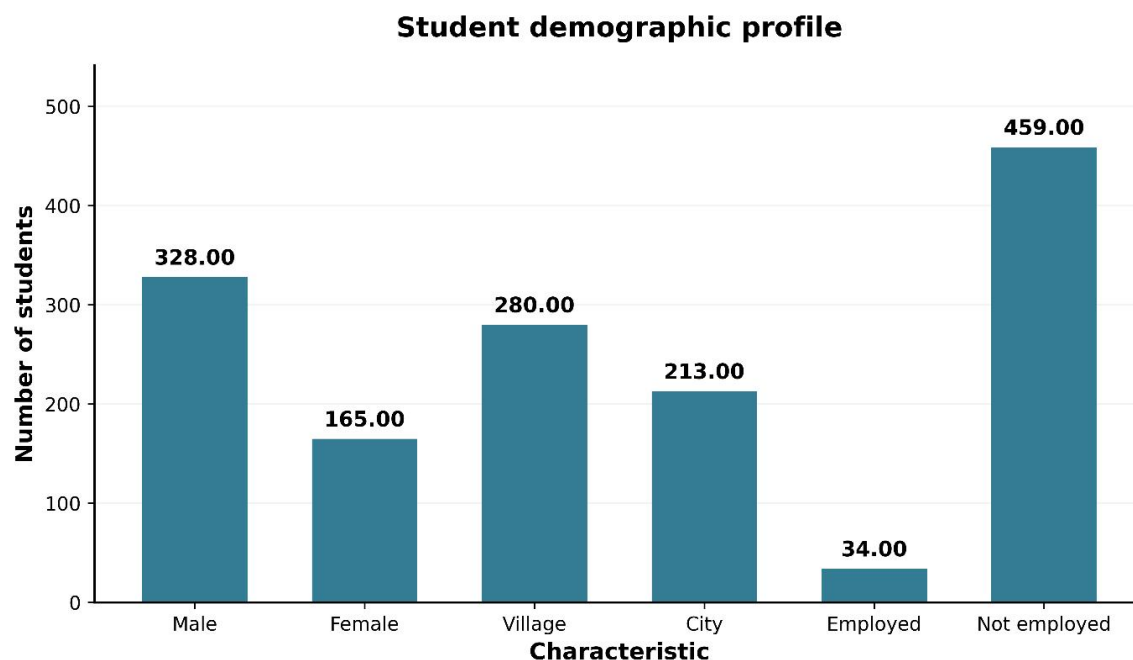


Figure 1. Demographic Characteristics of Undergraduate Students

3.2. Distribution of Study Habits and Classroom Attendance

The result of study habit and attendance is shown in Table 2. 228 students (46.25%) reported 2-3 hours of daily preparation time, and 0-1 hour of daily preparation time was reported by 218 students (44.22%). Only 47 students (9.53%) reported that they spent more than 3 hours a day preparing. As for gaming activities, out of 302 of the students (61.26%) said that they game more than 3 hours, 50 of the students (10.14%) spent 0-1 hours, and 112 of the students (22.60%) spent



1-3 hours. Classroom attendance was predominantly between 60% and 79% (44.02%), followed by 80–100% (39.96%). Only 11 students (2.23%) indicated that they had less than 40% attendance.

Table 2. Distribution of Study Habits and Classroom Attendance

Variable	Category	Frequency (n)	Percentage (%)
Daily study preparation	0–1 hour	218	44.22
	2–3 hours	228	46.25
	More than 3 hours	47	9.53
Gaming duration	0–1 hour	50	10.14
	2–3 hours	141	28.60
	More than 3 hours	302	61.26
Classroom attendance	Below 40%	11	2.23
	40–59%	68	13.79
	60–79%	217	44.02
	80–100%	197	39.96

As illustrated in Figure 2, the largest proportion of students reported 2–3 hours of daily academic preparation, whereas relatively few students exceeded three hours of preparation.

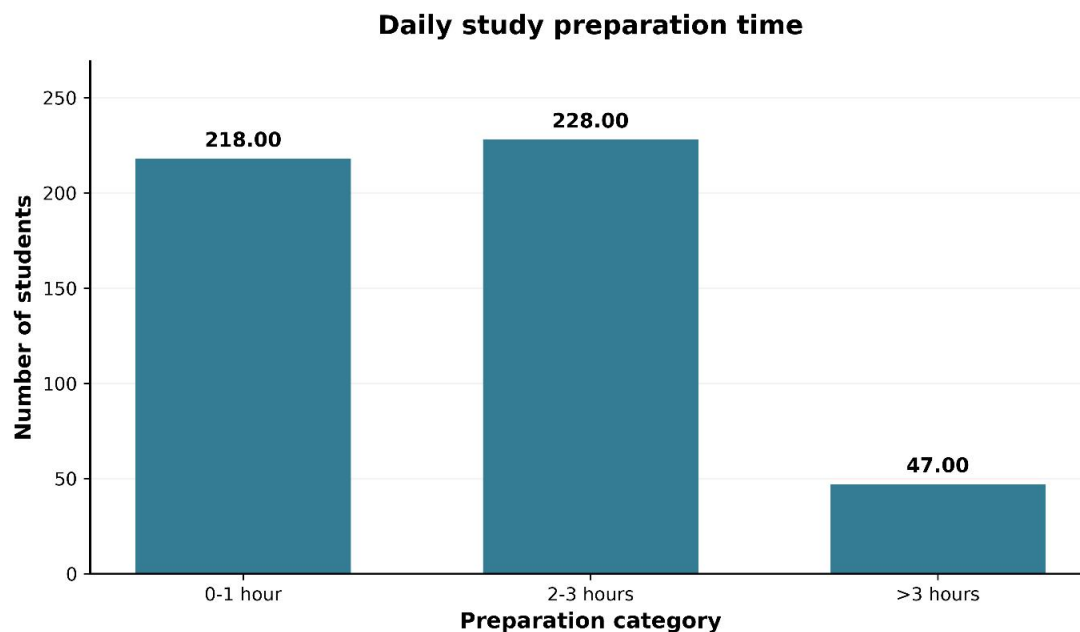




Figure 2. Distribution of Daily Study Preparation Time

3.3. Association Between Study Habits and Academic Performance

The study habits-academic performance relationship is shown in Table 3. Students who prepared for 0–1 hour per day had a mean GPA of 2.92 ± 0.68 , while those that prepared for 2–3 hours per day had a mean GPA of 3.39 ± 0.41 , and those who prepared for more than 3 hours per day had a mean GPA of 3.46 ± 0.37 . There was a statistically significant difference between the preparation types (Kruskal–Wallis $H = 72.36$, $p < 0.001$). There was a positive correlation with overall GPA and the daily preparation time (Spearman's $\rho = 0.377$, $p < 0.001$). In contrast, there was a negative correlation between gaming time and GPA ($\rho = -0.412$, $p < 0.001$). There was a lower positive correlation with the computer-related activity score ($\rho = 0.167$, $p < 0.001$).

Table 3. Association Between Study Habits and Undergraduate Academic Performance

Study habit	Category	n	Mean GPA $\pm$ SD	Test result
Preparation time	0–1 hour	218	2.92 ± 0.68	$H = 72.36$, $p < 0.001$
	2–3 hours	228	3.39 ± 0.41	
	More than 3 hours	47	3.46 ± 0.37	
Gaming duration	0–1 hour	50	3.62 ± 0.48	$H = 85.71$, $p < 0.001$
	2–3 hours	141	3.42 ± 0.29	
	More than 3 hours	302	3.01 ± 0.64	

Figure 3 illustrates a progressive increase in mean GPA with greater daily study preparation. The largest difference was observed between students preparing for 0–1 hour and those preparing for 2–3 hours.

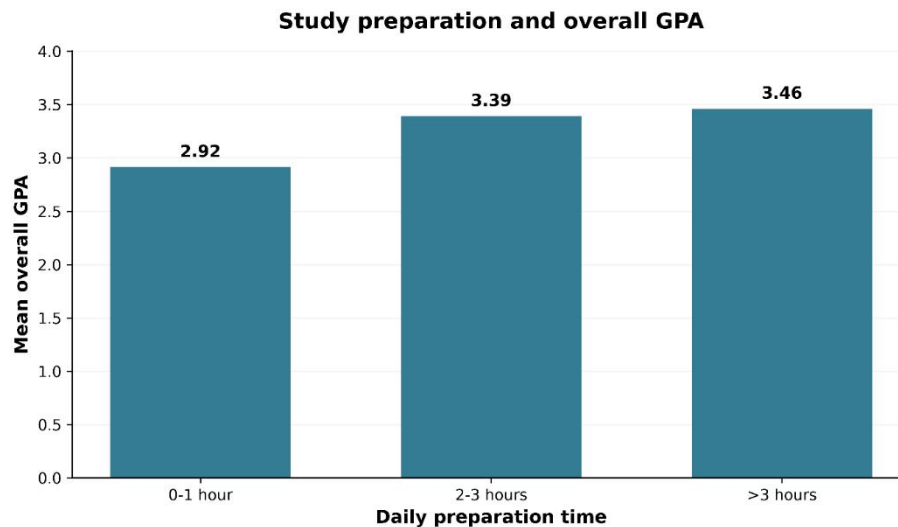




Figure 3. Mean Overall GPA According to Daily Study Preparation Time

3.4. Relationship Between Classroom Attendance and Academic Performance

A strong positive correlation was found between classroom attendance and achievement. Of the students, those who attended class less than 40% had the lowest mean GPA (1.78 ± 0.58) and those who attended 80% to 100% of classes had the highest mean GPA (3.59 ± 0.39) (Table 4). There were significant differences found between attendance categories ($H = 219.29$, $p < 0.001$). Spearman correlation also showed good positive correlation between attendance category and overall GPA ($\rho = 0.664$, $p < 0.001$). These results suggest that, for the population in this study, better academic outcomes were consistently tied to higher attendance.

Table 4. Comparison of Academic Performance Across Classroom Attendance Categories

Attendance category	n	Percentage (%)	Mean GPA $\pm$ SD
Below 40%	11	2.23	1.78 ± 0.58
40–59%	68	13.79	2.73 ± 0.38
60–79%	217	44.02	3.04 ± 0.52
80–100%	197	39.96	3.59 ± 0.39

Note: Kruskal–Wallis $H = 219.29$, $p < 0.001$; Spearman's $\rho = 0.664$, $p < 0.001$.

Figure 4 demonstrates the increasing trend in academic performance across attendance categories. The difference between the lowest and highest attendance groups was approximately 1.81 GPA points.

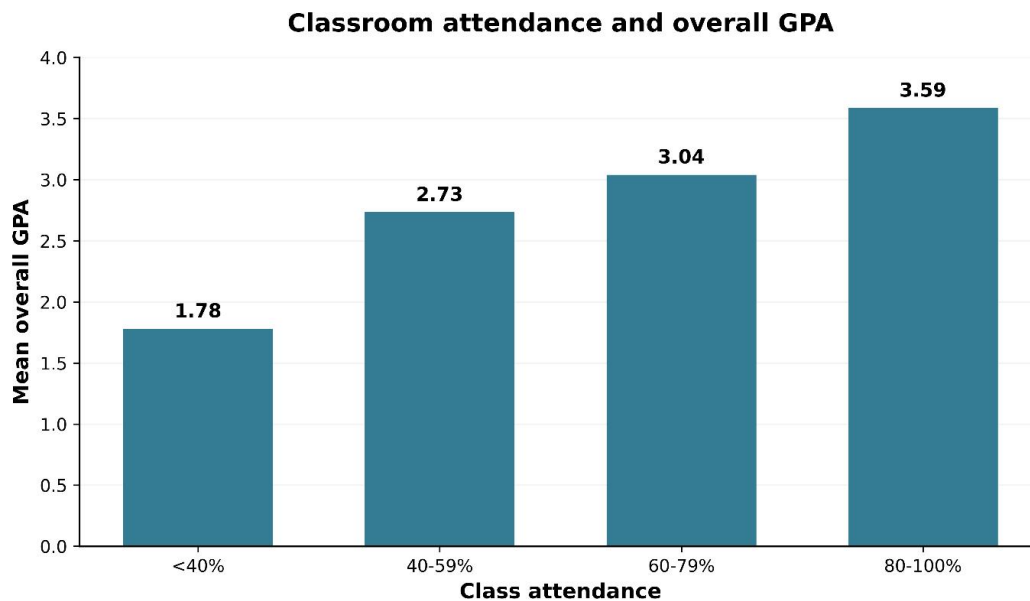




Figure 4. Variation in Mean Overall GPA Across Classroom Attendance Categories

3.5. Socioeconomic Differences in Academic Performance

The socioeconomic dimension of academic achievement was explored through family income, place of birth and employment. As seen in Table 5, there was not many differences in the mean GPA across the different family income categories with a range from 3.17 ± 0.62 over the lower middle income to 3.23 ± 0.58 for the low-income group. There was no statistically significant difference between the overall change ($H = 0.49$, $p = 0.922$). Likewise, hometown was not significantly related to academic performance ($p = .294$). The mean GPA of students without employment (3.19 ± 0.60) was slightly higher than that of students who were employed (3.15 ± 0.50), but this was not a statistically significant difference ($P = .323$).

Table 5. Academic Performance According to Socioeconomic Characteristics

Socioeconomic factor	Category	n	Mean GPA $\pm$ SD	p-value
Family income	Low	74	3.23 ± 0.58	0.922
	Lower middle	180	3.17 ± 0.62	
	Upper middle	110	3.19 ± 0.58	
	High	129	3.19 ± 0.57	
Hometown	Village	280	3.16 ± 0.61	0.294
	City	213	3.22 ± 0.57	
Employment status	Employed	34	3.15 ± 0.50	0.323
	Not employed	459	3.19 ± 0.60	

Figure 5 illustrates the limited variation in mean GPA across family income categories. The absence of a consistent upward or downward pattern suggests that family income alone did not explain meaningful differences in academic performance in this sample.

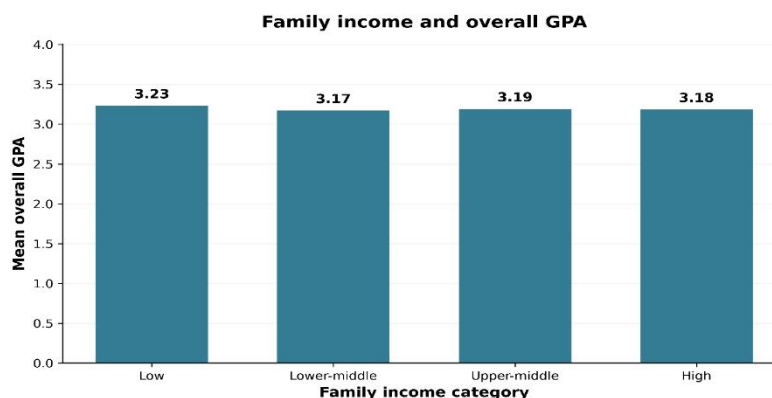




Figure 5. Mean Academic Performance Across Family Income Categories

3.6. Multivariable Analysis of Factors Associated with Academic Performance

Multiple linear regression was performed to look at the adjusted relationship of study habits, classroom attendance, socioeconomic factors and selected academic factors to overall GPA. 56.15% of the variance in academic performance was accounted for by the model ($R^2 = 0.561$, adjusted $R^2 = 0.547$). The results indicated that, as seen in Table 6, the 2–3 hour per day of preparation was positively correlated with GPA ($B = 0.263$, $p < 0.001$) as opposed to 0–1 hour per day. A considerably lower GPA was correlated with attendance below 40% ($B = -1.579$, $p < 0.001$) as compared to attendance 80–< 100%. There was no significant difference in GPA by employment status, but this relationship was negative after adjustment ($B = -0.242$, $p = 0.001$). The adjusted model did not show family income or hometown to be significant predictors.

Table 6. Multiple Linear Regression Analysis of Factors Associated with Undergraduate Academic Performance

Predictor	B	95% CI	p-value
Study preparation			
2–3 hours	0.263	0.170 to 0.355	<0.001
More than 3 hours	0.128	0.002 to 0.253	0.047
Classroom attendance			
Below 40%	-1.579	-1.901 to -1.257	<0.001
40–59%	-0.653	-0.775 to -0.530	<0.001
60–79%	-0.535	-0.638 to -0.433	<0.001
Family income			
Lower-middle	0.012	-0.104 to 0.128	0.841
Upper-middle	0.004	-0.122 to 0.130	0.947
High	0.070	-0.055 to 0.194	0.274
Other characteristics			
Village residence	0.003	-0.079 to 0.084	0.950
Employed	-0.242	-0.389 to -0.095	0.001
Male gender	-0.109	-0.180 to -0.037	0.003
Gaming 2–3 hours	0.069	-0.069 to 0.206	0.329



Gaming more than 3 hours	−0.154	−0.305 to −0.004	0.045
Computer-related activity score	0.079	0.049 to 0.109	<0.001
HSC score	0.060	−0.027 to 0.147	0.176
SSC score	0.014	−0.104 to 0.132	0.810

In general, the highest correlations with undergraduate academic achievement were classroom attendance, followed by duration of study preparation per day and duration of gaming. Socioeconomic characteristics were not strongly associated but were statistically significant when adjusted for other characteristics (p value < 0.05). The results suggest that academic behaviours and classroom involvement were more strongly related to GPA than family income or family of origin. But these are only observations, and not necessarily causal.

4. Discussion

This study aimed to analyse the relationship between socioeconomic factors, study habits, attendance in the classroom and academic performance of 493 undergraduate students. The results indicated that there were positive relationships between classroom attendance, daily study preparation, and overall GPA, while extended playing time was negatively related. There was no significant relationship found between family income and residential background and academic achievement. Previous studies have also studied socioeconomic conditions, study habits, and access to technology in educational outcomes (Joaquim et al., 2025). The differences in academic performance may also be attributed to individual characteristics such as personality traits (Shaninah & Mohd Noor, 2024).

There was a significant positive relationship between "daily study preparation" and academic achievement. The average gpa of the students who studied more than three hours a day was higher than that of the students who studied for a shorter period. On the other hand, longer gaming time had a negative impact on academic achievement, emphasizing the need for proper time management. Previous research has shown that student participation is correlated with student achievement (Subandiyah et al., 2025). However, it is also evident that comparing academic performance using statistics is an indication of the need to use the right tools for comparison among student population (Sumeer et al., 2025). Nevertheless, the findings presented here do not point to causation but associations.

The most important predictors of students' achievements were classroom attendance and the fact that the pupils attending more than 80-100% classes had significantly different GPAs compared to those pupils attending 40% of the class. Therefore, it can be argued that classroom learning and interaction with material in the classroom has an impact on the learning process. The relationship between educational attendance and academic performance –economic situation- has been studied



before too (Suna & Özer, 2022). Further, health factors and socioeconomic factors can be a factor in attendance, suggesting that classroom attendance be considered in the context of other student factors (Wikel & Markelz, 2023).

Socioeconomic factors showed relatively weak associations with academic outcomes. Family income and residential background were not statistically significant, whereas employment status was significantly and negatively associated with GPA after adjustment for other factors. Previous research has documented socioeconomic disparities in learning outcomes, particularly during school closures (Bem-Haja et al., 2022), and has examined the link between socioeconomic status and academic achievement among medical students (Ely et al., 2023). Likewise, the home environment and family circumstances have been identified as influences on learning performance (Mensah et al., 2024). Taken together, the evidence indicates that socioeconomic status affects both educational attainment and participation in higher education (Tomaszewski et al., 2025).

The results indicate that universities should promote the frequent attendance of students, good study habits and academic assistance for the working student. Academic mentoring, attendance monitoring and time-management programs can help students to improve their learning practices. Research has examined the role of parental engagement in fostering student success in learning and education (Abbas et al., 2023). Additionally, it may be possible that participation of family is discussed as a factor that impacts the student's academic success (Hyder & Anbar, 2025). However, some socioeconomic differences in parental engagement indicate that some institutional support may be required, which is accessible to students (Kwarteng et al., 2022).

Some study limitations included cross-sectional design and categorical measures, and a high proportion of Computer Science and Engineering students, which may limit generalizability. Other factors such as parental education, motivation and household responsibilities may also impact academic achievement and have not been measured. Previous research has found several complex links between family socioeconomic status and engagement in education (Tompsett & Knoester, 2023). Future research should include more diverse groups of undergraduate students, extended periods of observation time, and more specific socioeconomic measures of performance to better understand those measures.

5. Conclusion

This study investigated how study habits, class attendance, and socioeconomic factors impact the academic performance of undergraduates from a population of 493 students. The results showed a significant association between classroom attendance, daily study preparation, and academic achievement, and a negative correlation between duration of gaming and overall GPA. The strongest relationship with academic performance was classroom attendance, with students who had higher attendance having better academic outcomes. Likewise, students who spent longer on



academic preparation had high GPA scores, which shows the significance of regular learning activities and the wise use of time. Academic performance was relatively weakly associated with socioeconomic factors. Other variables were negatively correlated with the GPA for student employment, and family income and family background were not statistically significant. It can be argued that academic behaviours and participation in the classroom are more strongly related to performance than some socioeconomic features in the studied population. It is important to stress that the promotion of regular attendance and effective studying, as well as additional academic support, will help employed students. The implementation of academic mentoring, time management program, attendance support at university is recommended to enhance the educational process. However, this study has the cross-sectional design and the number of departments involved, limiting the conclusions that can be made. Further research should be conducted in a broader sample and with a longitudinal design.

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