



Academic Performance and Its Associated Factors Among Pawi Health Science College Students in Benishangul Gumuz Regional State, North-West, Ethiopia

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Abstract: Background: Academic performance can be defined as the degree to which a teacher, an institution, or a student meets short-term or long-term learning objectives. Continuous assessments and the student's overall cumulative grade point average (CGPA) are typically used to measure academic achievement.

Objectives: To assess academic performance and its associated factors among students at Pawi Health Science College, Benishangul Gumuz Regional State, North-West, Ethiopia, 2025.

Methods: A cross-sectional study was conducted at the institution from March to May 2025. The sample size was determined using the single population proportion formula, resulting in a total of 348 participants. Data was entered using Epidata version 4.1, and further analysis was performed using SPSS version 25. Both bivariate and multivariate logistic regression analyses were employed to examine the relationship between the dependent and independent variables. A significant association was declared if the adjusted odds ratio had a p-value less than 0.05 and a 95% confidence interval.

Results: A total of 348 students were included in this study, giving a response rate of 98.6%. The overall magnitude of good academic performance among Pawi health science students was 37.7%, with a 95% CI of (2.663–2.748). Attending classes regularly [COR = 1.499, 95% CI = 1.166–1.928], prioritizing attending class [AOR = 3.186, 95% CI = 1.828–12.276], attending class when interactive [AOR = 4.886, 95% CI = 1.302–13.329], and the timely completion of assignments [AOR = 1.268, 95% CI = 1.010–5.594] were significantly associated with good academic performance.

Conclusion: This study found that nearly two-thirds of the participants demonstrated poor academic performance. The identified factors highlight the importance of regular class attendance, interactive learning environments, and timely submission of assignments in promoting academic success.

Recommendation: Therefore, it is essential for the appropriate authorities to actively improve both the physical conditions and the study habits of the students, which includes ensuring they have adequate time for studying. Additionally, the college should provide support to create a conducive learning environment and enhance the teaching and learning process.

Keywords: Academic performance, cumulative grade point average, health science students, Ethiopia, Benishangul Gumuz

1. INTRODUCTION

1.1 Background of the Study

Academic performance refers to the extent to which a school, instructor, or student achieves learning goals,

whether these are short-term or long-term. It is usually measured through ongoing assessments and the student's overall cumulative grade point average (CGPA). Academic performance serves as a critical indicator of educational quality and student success in higher

education institutions worldwide (Oppong-Sekyere et al., 2013).

One important aspect of education is the academic performance of the students (Oppong-Sekyere et al., 2013). The entire educational system is centered on the fact that, according to reports, a student's academic performance influences the degree of success or failure that an academic institution experiences, and is a top concern for both institutions and instructors. Learning establishments are worthless without students. The primary source of any educational setup is the students; fast educational reform is a worthwhile human endeavor these days. It is crucial for increasing human wealth and for fostering character development and performance that raises people's standards of living (Fajar et al., 2019).

Student performance has a significant impact on the quality of education, producing high-caliber graduates. Thus, they become leaders of their nation and contribute to its development; they are the foundation of their nation (Fajar et al., 2019; Malik, 2018). A nation's social and economic development is directly linked to universities and students' academic performance (Ratts et al., 2016). Outstanding academic performance and student accomplishments result in the production of the highest caliber of graduates who can serve as future leaders and supply the nation with an effective labor force (Ali et al., 2013).

Since they have been a focus for both educators and researchers, the elements that either contribute to students' academic performance improvement or contribute to their underperformance in an academic institution have been well-examined (Jabeen et al., 2017). According to research, students with strong academic records and accomplishments typically have greater career prospects, higher incomes, more chances for professional growth and promotion, and better benefits at work (Jabeen et al., 2017; Wilkins et al., 2021). Additionally, students who succeed academically typically have higher levels of confidence and self-esteem, experience less anxiety and depression, are more involved in society, and are less prone to engage in social ills like drug and alcohol misuse (Al-Tameemi et al., 2023).

1.2 Statement of the Problem

Health science education in Ethiopia has expanded significantly in recent decades, with numerous public and private institutions established to train the healthcare workforce needed to address the country's health challenges. However, concerns about the quality of education and academic performance of health science students have been raised by various stakeholders, including the Ministry of Health, regulatory bodies, and employers.

Despite the critical role of health professionals in the healthcare system, studies from various Ethiopian institutions have reported suboptimal academic

performance among health science students. For instance, studies conducted at Gondar University (72.5%), Hawassa University (66%), Arbaminch University (52%), and Mizan-Tepi University (53.3%) have shown varying levels of good academic performance, with some institutions reporting alarmingly low rates (Hailu et al., 2024; Gedefaw et al., 2015; Kassaw & Demareva, 2024; Toru et al., 2019).

Pawi Health Science College, located in the Benishangul Gumuz Regional State, is the only governmental health science college in the region. It plays a crucial role in training health professionals for the underserved communities of the region. However, there is limited empirical evidence on the academic performance of students at this institution. Understanding the magnitude of academic performance and identifying the factors associated with it is essential for developing targeted interventions to improve student outcomes.

Therefore, this study aimed to assess academic performance and its associated factors among students at Pawi Health Science College, Benishangul Gumuz Regional State, North-West, Ethiopia, 2025.

1.3 Significance of the Study

The results of this study will make it easier for students to improve their academic performance and achieve higher academic results. Students in different universities, with the expectation of improving their performance to succeed in exams in the quest for high grades, always try to attend classes. Many students have attempted to improve their performance through the use of available facilities and resources. Many factors, such as facilities and funding resources, are found to affect students' performance and educational outcomes in their respective universities. Moreover, it is highly demanding and preferred for students to enhance their academic performance through information and communication services, which can assist many of these students to interact with their peers and many institutions throughout the world (Malik, 2018).

1.4 Objectives

1.4.1 General Objective

To assess academic performance and its associated factors among students at Pawi Health Science College, Benishangul Gumuz Regional State, North-West, Ethiopia, 2025.

1.4.2 Specific Objectives

1. To determine the magnitude of academic performance among Pawi Health Science College students.
2. To identify student-related factors associated with academic performance among Pawi Health Science College students.

3. To identify teacher-related factors associated with academic performance among Pawi Health Science College students.
4. To identify school-related factors associated with academic performance among Pawi Health Science College students.
5. To identify socio-demographic factors associated with academic performance among Pawi Health Science College students.

2. LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 The Input-Environment-Output (IEO) Model

The Input-Environment-Output (IEO) model, developed by Astin (1993), provides a useful framework for understanding the factors that influence academic performance. According to this model, student outcomes (outputs) are influenced by student characteristics and backgrounds (inputs) and the educational environment (environment). The model suggests that academic performance is not solely determined by student characteristics but is also shaped by institutional factors, teaching quality, and the learning environment.

2.1.2 Bandura's Social Cognitive Theory

Bandura's Social Cognitive Theory emphasizes the role of observational learning, self-efficacy, and self-regulation in academic achievement. According to this theory, students who have high self-efficacy beliefs are more likely to engage in behaviors that promote academic success, such as regular class attendance, timely completion of assignments, and effective study habits. The theory also highlights the importance of the learning environment and social interactions in shaping academic outcomes.

2.1.3 Tinto's Student Integration Theory

Tinto's Student Integration Theory posits that student success in higher education depends on the degree to which students are academically and socially integrated into the institution. Students who are well-integrated are more likely to persist and succeed academically. This theory highlights the importance of classroom interactions, faculty-student relationships, and peer support in promoting academic achievement.

2.2 Factors Affecting Academic Performance

2.2.1 Student-Related Factors

Student-related factors are among the most significant determinants of academic performance. These include attendance patterns, study habits, motivation, time management skills, and personal characteristics.

Attendance: Regular class attendance has been consistently associated with better academic performance. Studies conducted at Nagpur University (Norazlan et al., 2020), Tuskegee University (Akareem

& Hossain, 2016), Lusaka University in Zambia (Siachifuwe, 2017), Iran (Franke et al., 2021), and Sargodha University in India (Alzoubi & Ahmed, 2022) have all found significant positive associations between attendance and academic achievement. As students attend classes regularly, their skills improve, and they have less resort to studying time before examinations, thus enhancing their academic achievement (Ayenew & Yohannes, 2022).

Study Habits: Effective study habits, including consistent daily study schedules, completion of assignments ahead of deadlines, and regular review of class notes, are crucial for academic success. Students who engage in active learning strategies and manage their time effectively tend to perform better academically.

Motivation and Attitude: Students' motivation and attitudes toward learning significantly influence their academic performance. Intrinsic motivation, which involves learning for its own sake, is associated with deeper learning and better outcomes. Extrinsic motivation, driven by external rewards, can also be effective but may be less sustainable.

2.2.2 Teacher-Related Factors

Teacher-related factors play a critical role in student academic performance. These include teaching quality, communication skills, enthusiasm, assessment methods, and supervision.

Teaching Quality: Effective teaching involves clear communication, enthusiasm for the subject, patience, and the use of appropriate teaching methods. Studies have shown that instructors who use interactive teaching methods, such as group work, discussions, and hands-on projects, contribute to better student outcomes (Alani & Hawas, 2021).

Assessment Methods: The alignment of assessments with learning objectives is essential for student success. Students who are assessed using methods that accurately measure their understanding and skills are more likely to perform well academically.

Supervision and Support: Instructor supervision and support are particularly important for student success. Students who receive timely feedback and support from their instructors are more likely to stay on track and achieve their academic goals.

2.2.3 School-Related Factors

School-related factors include the physical learning environment, resources, and institutional support systems.

Physical Environment: The physical learning environment, including classroom size, lighting, and seating arrangements, can affect student learning. Studies have shown that well-designed learning environments contribute to better student outcomes (Wu et al., 2024).

Resources and Facilities: Access to resources such as libraries, computers, and internet services is important for academic success. Students who have access to these resources are better equipped to conduct research, complete assignments, and engage in learning activities (Mekonnen et al., 2024).

Institutional Support: The availability of academic advising, counseling, and support services can also affect student academic performance. Students who receive adequate support are more likely to persist and succeed academically.

2.2.4 Socio-Demographic Factors

Socio-demographic factors, including age, gender, marital status, residence, and socioeconomic status, can also influence academic performance.

Gender: The relationship between gender and academic performance has been extensively studied, with mixed findings. Some studies have found that female students perform better academically, while others have found no significant differences or that male students perform better.

Age: Older students may have different academic trajectories than younger students. While some studies have found that older students perform better due to greater maturity and life experience, others have found that younger students perform better due to being more recently in school.

Socioeconomic Status: Students from higher socioeconomic backgrounds may have better access to resources that support academic success, including tutoring, technology, and a conducive home learning environment.

2.3 Academic Performance in Health Science Education

Health science education presents unique challenges and opportunities for academic performance. Students in health science programs must master a large volume of complex content, develop clinical skills, and demonstrate competencies in professional practice. The demands of health science education require students to be highly motivated, well-organized, and able to manage their time effectively.

Studies from various Ethiopian institutions have reported varying rates of good academic performance among health science students. A study conducted at Dire Dawa University College of Health Sciences in 2024 found that 70.5% of students had good academic performance (Hailu et al., 2024). Similarly, studies at Gondar University (72.5%) and Hawassa University (66%) reported relatively high rates of good academic performance (Hailu et al., 2024; Gedefaw et al., 2015). However, studies at Arbaminch University (52%) and Mizan-Tepi University (53.3%) reported lower rates (Kassaw & Demareva, 2024; Toru et al., 2019).

These variations suggest that academic performance is influenced by multiple factors, including institutional characteristics, student demographics, and educational practices.

2.4 Conceptual Framework

Based on the literature review, the conceptual framework for this study identifies the relationship between various independent variables and academic performance (dependent variable). The independent variables are categorized into four groups: socio-demographic factors (age, gender, marital status, residence, department, source of income, year level), student factors (attendance rate, study habits), teacher factors (enthusiasm/patience, use of facilitation skills, technology/teaching aids, assessment method, communication skills), and school factors (classroom size, internet access, skill laboratory, library, accommodation, instructional language, lighting, and boredom). These factors collectively influence academic performance, which is measured by students' cumulative grade point average (CGPA).

3. METHODS

3.1 Study Area and Period

Study Area

Pawe Health Science College is the only governmental college found in the Benishangul Gumuz region, Metekel Zone, Pawe woreda. The college is located 550 km northwest of Addis Ababa and 420 km northeast of Assosa. PHSC is staffed with 144 staff members, comprising 56 academics and 88 administrative staff. The College has six departments: health extension, nursing, midwifery, laboratory technician, pharmacy technician, and health information technician.

Study Period

The study was conducted between March 1 and May 30, 2025, at Pawe Health Science College.

3.2 Study Design

An institution-based cross-sectional study was employed.

3.3 Source Population

All students in the Pawe Health Science College intake for the 2022–2025 academic year.

3.4 Study Population

All randomly selected students from the selected department and the class year of 2022–2025.

3.5 Inclusion Criteria

- Students who have enrolled in their Current Level-IV
- Students who have a cumulative GPA

3.6 Exclusion Criteria

- 2017 E.C. Intake students
- Students who are seriously ill during the data collection period

3.7 Sample Size and Sampling Procedure

Sample Size

The total sample size of 348 was considered based on the following assumption: Prevalence of P-value considering 70.5% AP done at Dire Dawa University College of Health Sciences 2024 (Hailu et al., 2024), 95% confidence interval, 5% marginal error, 10% non-response rate. The sample size was calculated using the single population proportion formula:

$$n = (Z\alpha/2)^2 \times p(1-p) / d^2$$

Where:

- n = required sample size
- $Z\alpha/2 = 1.96$ (for 95% confidence interval)
- p = proportion of good academic performance (70.5% = 0.705)
- d = margin of error (5% = 0.05)

$$n = (1.96)^2 \times 0.705 \times 0.295 / (0.05)^2$$

$$n = 3.8416 \times 0.2079 / 0.0025$$

$$n = 0.7987 / 0.0025$$

$$n = 319.5 \approx 320$$

Adding 10% non-response rate: $320 + 32 = 352 \approx 348$ participants.

Sampling Technique and Procedure

A computer-generated random sampling technique was employed to select 348 participants on the basis of their ID. The first 509 students' ID was entered into SPSS, and then 348 participants were selected randomly.

3.8 Data Collection Procedure

Self-administered questionnaire and document review technique were used to collect the data. The questionnaire has 37 items and four parts, which includes:

1. Student-related factors
2. Environmental-related factors
3. School-related factors
4. Teacher-related factors

Each factor had a subset of items designed to capture specific aspects of the factor.

3.9 Data Processing and Analysis

Before being moved to SPSS version 25 for analysis, the data were coded, cleaned, recoded, and entered into Epidata version 4. A table, a figure, and a statement were used to present the data. The relationship between independent and dependent variables was investigated

using bivariate logistic regression analysis. To control for possible confounding, all variables in the bivariate logistic regression model with a p -value < 0.25 were added to the multivariable logistic regression model, and variables in the multiple logistic regression model with a p -value ≤ 0.05 were considered statistically significant.

A multicollinearity test was also done to assess how much the variance of an estimated regression coefficient increases if the predictors are correlated. All values of the variance inflation factor were less than two (a maximum of 1.07 and a minimum value of 1.02). All values of the tolerance test were also above 0.2 (a maximum of 0.974 and a minimum value of 0.9). These values show that there was no problem with multicollinearity in this study. To check for internal consistency of the Likert scale item measurement tool for each domain, a reliability analysis was done. The overall value of Cronbach's alpha for the test items was 0.79, indicating acceptable internal consistency.

3.10 Data Quality Control

To ensure the quality of data, the data collection tool was reviewed by an expert group, and one day of training for data collectors was given before the beginning of the actual data collection day. All filled questionnaires were checked immediately after each session of data collection by the supervisors daily for completeness. Before analysis, the data was cleaned thoroughly to check for completeness, and data was entered with the help of Epidata to minimize error during entry.

3.11 Study Variables

Dependent Variable

- Academic Performance (Good vs. Poor)

Independent Variables

Socio-demographic factors:

- Age
- Gender
- Marital Status
- Residence
- Department
- Source of income
- Year level

Student factors:

- Attendance Rate
- Study habits

Teacher factors:

- Enthusiasm/Patience
- Use of Facilitation Skills
- Technology/Teaching aids

- Assessment Method
- Communication skills

School factors:

- Classroom size
- Internet access
- Skill Laboratory
- Library
- Accommodation
- Instructional language
- Lighting
- Boredom

3.12 Operational Definitions

Dependent Variable

Poor academic performance: A cumulative GPA < 3.00 (Hailu et al., 2024).

Good academic performance: A cumulative GPA ≥ 3.00 (Hailu et al., 2024).

Independent Variables

Regular class attendance: Students who attend at least 80% of scheduled classes.

Priority to attending class: Students who prioritize attending class over other activities.

Interactive class attendance: Students who attend classes when interactive teaching methods are employed.

Timely completion of assignments: Students who complete and submit assignments before or on the deadline.

Study habits: Routines, time management, and academic discipline practices of students.

Teacher factors: Characteristics and practices of instructors that may affect student learning.

School factors: Institutional characteristics and resources that may affect student learning.

3.13 Ethical Consideration

Ethical approval was obtained from the Research Ethics Review Committee of Pawi Health Science College. Verbal informed consent to participate was taken after explaining the objectives. All study participants were informed about the purpose of the study, and any additional information was given as needed, verbally and in written form. Participants were guaranteed the confidentiality of the information collected; completed questionnaires were stored securely, and they were also told that their nonparticipation would not harm their study.

3.14 Dissemination of Findings

The findings of the research will be disseminated to the Pawi Health Science College community. An effort will be made to present it at a national scientific conference and publish it in international journals.

4. RESULTS

4.1 Socio-demographic Characteristics of Study Participants

A total sample size of 348 students was selected to participate in this study, and the response rate was 98.6%. Finally, 342 questionnaires were considered valid for analysis.

Regarding the socio-demographic characteristics of the respondents, more than half, 212 (62.0%), were male. The largest number of students belonged to the 21–24 age category, with 245 (71.6%) students, and the mean age of the respondents was 22.29, with a standard deviation of ± 2.274. Regarding the field of study, 92 (26.9%) and 81 (23.7%) were occupied with nursing and pharmacy students, respectively. In terms of marital status, 262 (76.6%) of the participants were single. Out of the 342 study participants, the majority of them (304, 88.9%) had a family source of income.

Table 1: Socio-demographic characteristics of the study participants for the study on academic performance among Pawe health science students at North West Ethiopia, Benishangul-Gumuz Region in 2025 (N = 342)

Variables	Categories	Frequency (n)	Percentage (%)
Sex	Male	212	62.0
	Female	130	38.0
Age	≤20 years	72	21.1
	21-24 years	245	71.6
	≥25 years	25	7.3
Marital Status	Single	262	76.6

	Married	80	23.4
Residence	Urban	194	56.7
	Rural	148	43.3
Department	Nursing	92	26.9
	Pharmacy	81	23.7
	Midwifery	58	17.0
	Laboratory	48	14.0
	Health Extension	39	11.4
	Health Information	24	7.0
Source of Income	Family	304	88.9
	Self	38	11.1
Year Level	Year 1	89	26.0
	Year 2	97	28.4
	Year 3	86	25.1
	Year 4	70	20.5

4.2 Magnitude of Academic Performance

This study revealed that the overall magnitude of good academic performance was 37.7%, with a 95% CI of (2.663–2.748). The poor academic performance was 62.3%. The mean CGPA of students was 2.990 (SD $\pm$ 0.482), with a minimum of 2.00 and a maximum of 4.00 points.

Figure 1: Magnitude of academic performance of the study participants for the study on academic performance among Pawe health science students at North West Ethiopia, Benishangul-Gumuz Region in 2025

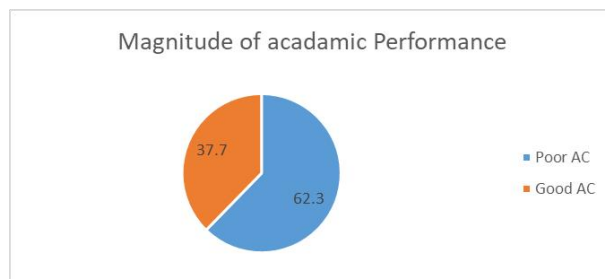


Figure 1: Magnitude of academic performance of the study participants for the study on academic performance among Pawe health science students at North West Ethiopia, Benishangul-Gumuz Region in 2025 (Page 5)

4.3 Class Attendance Characteristics of Participants

In this study, participants attended termly, prioritizing 257 (75.1%) of the students prioritizing attending class over other activities. More than half, 214 (62.6%) of the study participants sometimes skip classes when they feel unmotivated. More than half, 180 (52.6%) of the study participants sometimes miss their classes due to poor time management. The majority of the students, 245 (71.6%), always feel a fear of missing important information, which motivates them to attend. Among the participants, more than half, 189 (55.3%), always avoided classes when they felt unprepared.

In general, in this study, the mean score of all study participants was 1.62 with a minimum and maximum score of 1 and 5, respectively. In addition to that, this study revealed that the magnitude of good attending time/class was 114 (42.1%).

Table 2: Shows measures of factors influencing attending class among the study participants for the study on academic performance among Pawe health science students at North West Ethiopia, Benishangul-Gumuz Region in 2025 (N = 342)

Variables	Categories	Frequency (n)	Percentage (%)
Prioritize attending class	Always	257	75.1
	Sometimes	55	16.1
	Never	30	8.8
Skip classes when unmotivated	Always	45	13.2
	Sometimes	214	62.6
	Never	83	24.2
Miss classes due to poor time management	Always	38	11.1
	Sometimes	180	52.6
	Never	124	36.3
Fear of missing important information	Always	245	71.6
	Sometimes	67	19.6
	Never	30	8.8
Avoid classes when unprepared	Always	189	55.3
	Sometimes	103	30.1
	Never	50	14.6

4.4 Study Habits of the Participants

In this study, more than half of the study participants, 233 (68.1%), always followed a consistent daily study schedule, and about 243 (71.1%) of the participants always completed assignments ahead of deadlines. The majority of the study participants, 278 (81.3%), always get distracted easily while studying. Regarding reviewing class notes, the majority of the respondents, 235 (68.7%), always review class notes after each lecture, and 204 (59.6%) of the respondents always procrastinate on studying until the last minute. The majority of the respondents, 226 (66.1%), always use tools like planners or apps to organize their tasks. The majority of the study participants, 215 (62.9%), were always allocated time for breaks during their study sessions.

In general, in this study, the mean score of all study participants was 2.68 with a minimum and maximum score of 1 and 5, respectively. In addition to that, this study revealed that the magnitude of good study habits was 113 (44.0%).

Table 3: Shows assessment of routines, time management, and academic discipline among the study participants for the study on academic

performance among Pawi health science students at North West Ethiopia, Benishangul-Gumuz Region in 2025 (N = 342)

Variables	Categories	Frequency (n)	Percentage (%)
Consistent daily study schedule	Always	233	68.1
	Sometimes	78	22.8
	Never	31	9.1
Complete assignments ahead of deadlines	Always	243	71.1

	Sometimes	67	19.6
	Never	32	9.3
Easily distracted while studying	Always	278	81.3
	Sometimes	45	13.1
	Never	19	5.6
Review class notes after each lecture	Always	235	68.7
	Sometimes	74	21.6
	Never	33	9.7
Procrastinate studying until last minute	Always	204	59.6
	Sometimes	88	25.7
	Never	50	14.7
Use tools to organize tasks	Always	226	66.1
	Sometimes	76	22.2
	Never	40	11.7
Allocate time for breaks	Always	215	62.9
	Sometimes	87	25.4
	Never	40	11.7

4.5 School-Related Factors

Regarding school-related factors, the Majority of the respondents, 186 (54.4%), do not use the library provided by the college, and 194 (56.7%) of the respondents do not use a computer. The majority of the respondents, 193 (56.4%), reported that the instructors were used to board and more than half, 182 (53.2%) of

the respondents responded that the classroom size and lighting met the physical requirements. In terms of accessing the internet in the college, around half of the respondents, 173 (50.6%), reported that they can easily access the internet in the college. More than half, 176 (51.5%) of the respondents adhered to the instructional language of the college. In addition to that, this study revealed that the magnitude of good adherence to Instructional language was 79 (61.2%).

Table 4: Shows School Factors among the study participants for the study on academic performance among Pawe health science students at North West Ethiopia, Benishangul-Gumuz Region in 2025 (N = 342)

Variables	Categories	Frequency (n)	Percentage (%)
Use of library	Yes	156	45.6
	No	186	54.4
Use of computer	Yes	148	43.3
	No	194	56.7
Instructors use board	Yes	193	56.4
	No	149	43.6

Classroom size and lighting meet requirements	Yes	182	53.2
	No	160	46.8
Easy access to internet	Yes	173	50.6
	No	169	49.4
Adherence to instructional language	Yes	176	51.5
	No	166	48.5

4.6 Teacher-Related Factors

In this study, more than half of the study participants, 185 (54.1%) and 194 (56.7%), respectively, responded that their instructors were patient when explaining difficult concepts and enthusiastic about the subject. The majority of the respondents, 195 (57%), responded that the assessments used in the course (e.g., quizzes, essays, presentations) were well-aligned with the learning objectives. Regarding instructors' interactive activities, 201 (58.8%) of the participants reported that instructors used interactive activities (e.g., group work, discussions, and hands-on projects) in class.

Additionally, more than half of the respondents, 194 (56.7%) and 197 (56.3%) of the participants, reported that their teacher incorporated new teaching techniques and used visual aids (e.g., slides, diagrams, videos) to enhance understanding, respectively. In terms of the teachers' supervision and support, 192 (56.1%) of the respondents reported that the teacher's Supervision and Support for Students was Satisfactory. In addition, 212 (62%) of the respondents reported that the interaction between the teacher and students was satisfactory. Regarding the teacher's assessment method, the majority of the respondents, 208 (60.8%), responded that the teacher's assessment method (practical and written) was satisfactory.

Table 5: Shows the Teacher factor among the study participants for the study on academic performance among Pawi health science students at North West Ethiopia, Benishangul-Gumuz Region in 2025 (N = 342)

Variables	Categories	Frequency (n)	Percentage (%)
Instructors patient when explaining difficult concepts	Yes	185	54.1
	No	157	45.9
Instructors enthusiastic about the subject	Yes	194	56.7
	No	148	43.3
Assessments aligned with learning objectives	Yes	195	57.0
	No	147	43.0
Instructors use interactive activities	Yes	201	58.8
	No	141	41.2
Instructors incorporate new teaching techniques	Yes	194	56.7
	No	148	43.3
Instructors use visual aids	Yes	197	56.3
	No	145	42.4
Teacher supervision and support satisfactory	Yes	192	56.1
	No	150	43.9
Teacher-student interaction satisfactory	Yes	212	62.0

	No	130	38.0
Teacher assessment method satisfactory	Yes	208	60.8
	No	134	39.2

4.7 Factors Associated with Academic Performance

Logistic regression analysis was done to test the effect of different independent variables on academic

performance. Accordingly, prioritizing attending class, attending classes regularly, attending class when interactive, and timely completing assignments were significantly associated with academic performance.

Table 6: Bivariate and multivariate logistic regression analysis of academic performance and its associated factors among Pawe health science students in North West Ethiopia, Benishangul-Gumuz Region in 2025 (N = 342)

Variables	Categories	COR (95% CI)	AOR (95% CI)	p-value
Prioritize attending class over other activities	Yes	2.145 (1.456-3.158)	3.186 (1.828-12.276)	0.001*
	No (Ref)	1.000	1.000	-
Attend classes regularly	Yes	1.499 (1.166-1.928)	1.636 (0.466-5.745)	0.045*
	No (Ref)	1.000	1.000	-
Attend class when interactive	Yes	3.892 (1.875-8.079)	4.886 (1.302-13.329)	0.002*
	No (Ref)	1.000	1.000	-
Timely completion of assignments	Yes	1.678 (1.123-2.506)	1.268 (1.010-5.594)	0.048*
	No (Ref)	1.000	1.000	-

*Statistically significant at p-value < 0.05

Prioritizing to attend class over other activities was 3.1 times more likely to have good academic performance than students who were not prioritizing to attend class over other activities [AOR 3.186, 95% CI = 1.828–12.276].

Regarding attending class regularly, students who attend class regularly were 1.6 times more likely to have good academic performance than those who do not attend class regularly [AOR 1.636, 95% CI = 0.466–5.745].

Students who were attending class when it was interactive were 4.8 times more likely to have good academic performance than students who were not attending class when it was interactive [AOR 4.886, 95% CI = 1.302–13.329].

Regarding the timely completion of assignments, students who were completing their assignments on time were 1.2 times more likely to have good academic performance than students who were not completing their assignments on time [AOR = 1.268, 95% CI = 1.010–5.594].

5. DISCUSSION

5.1 Magnitude of Academic Performance

The study results showed that about one in three students has good academic performance (37.7%). This finding was lower than the study conducted in Gondar (72.5%) (Hailu et al., 2024), Hawassa University (66%) (Gedefaw et al., 2015), Arbaminch University (52%) (Kassaw & Demareva, 2024), and Mizan-Tepi (53.3%) (Toru et al., 2019). These discrepancies might be due to differences in sample size, level of students, or the different tools used to measure academic performance. Additionally, the geographic and socioeconomic context of the study area may contribute to these differences, as Benishangul Gumuz is one of the less developed regions in Ethiopia with limited educational resources.

The finding that nearly two-thirds of students (62.3%) demonstrated poor academic performance is concerning and highlights the need for targeted interventions. This low rate of academic success may be attributed to various factors, including limited access to educational resources, inadequate study facilities, and teaching quality issues at the college. The college's location in a relatively remote area may also affect students' access to supplementary learning materials and opportunities.

5.2 Factors Associated with Academic Performance

5.2.1 Prioritizing Attending Class

The study found that students who prioritized attending class over other activities were 3.1 times more likely to have good academic performance compared to those who did not. This finding is consistent with studies conducted in various settings that have demonstrated the importance of class attendance for academic success. Students who prioritize attendance demonstrate commitment to their education and are more likely to benefit from direct instruction, peer interaction, and immediate clarification of concepts.

5.2.2 Regular Class Attendance

Students who attended all classes regularly were more likely to have good academic performance when compared to students who did not attend classes regularly. This finding was in line with studies conducted at Nagpur University (Norazlan et al., 2020), Tuskegee University (Akareem & Hossain, 2016), Lusaka University in Zambia (Siachifuwe, 2017), Iran (Franke et al., 2021), Sargodha University in India (Alzoubi & Ahmed, 2022), Wollo University (Yohannes, 2023), and Jimma University (Tekle et al., 2025). As they attend classes regularly, their skills improve, and they have less resort to studying time before examinations, thus enhancing their academic achievement (Ayenew & Yohannes, 2022).

Regular attendance ensures that students are exposed to the entire curriculum, participate in discussions, and receive timely feedback from instructors. It also helps students stay engaged with the course material and avoid the last-minute cramming that often leads to poor performance. The finding underscores the need for institutions to implement policies that encourage and monitor class attendance.

5.2.3 Interactive Class Attendance

Attending class when interactive was significantly associated with the academic performance of students. This finding was in line with studies done in India (Alzoubi & Ahmed, 2022), China (Wu et al., 2024), the Philippines (Alzoubi & Ahmed, 2022), and Jordan (Alani & Hawas, 2021). This significant association between attending class and interactive academic performance was supported by evidence highlighting the effectiveness of resource utilization, metacognitive awareness, goal setting, continuous assessment, and structured learning environments. Students who attend class when interactive approaches to studying are adopted are better equipped to manage their learning processes, leading to improved academic outcomes (Mekonnen et al., 2024).

Interactive teaching methods, such as group work, discussions, and hands-on projects, engage students actively in the learning process. These methods promote deeper understanding, critical thinking, and application

of knowledge, which are essential for academic success in health science education.

5.2.4 Timely Completion of Assignments

Students who completed their assignments on time were 1.2 times more likely to have good academic performance than students who did not complete their assignments on time. Timely completion of assignments is important because it allows students to receive feedback on their work, identify areas for improvement, and apply learning to subsequent assessments. It also helps students develop time management skills and academic discipline, which are essential for success in health science programs.

5.3 Other Factors Not Found to be Significantly Associated

While the study identified several factors significantly associated with academic performance, other factors such as socio-demographic characteristics, school-related factors, and some teacher-related factors were not found to have statistically significant associations. This may be due to the relatively small sample size, the limited range of responses in some categories, or the possibility that these factors are mediated by other variables.

6. CONCLUSION

In this study, only one-third of the participants demonstrated good academic performance. Hence, the academic performance of Pawe Health Science College students was low. Prioritizing attending class, attending classes regularly, attending class when interactive, and timely completing assignments were significantly associated with good academic performance.

The low rate of academic performance has significant implications for the quality of healthcare professionals graduating from the college. Students who perform poorly academically may lack the knowledge and skills necessary to provide quality healthcare services, which could negatively affect the health outcomes of the communities they serve.

7. RECOMMENDATIONS

7.1 To Pawe Health Science College

To improve the student academic performance, the college should:

1. **Encourage library use:** Emphasize encouraging students to use the library facility and extend library hours to accommodate students with different schedules.
2. **Improve internet access:** Improve internet access as a critical intervention for the future. The college should invest in reliable internet connectivity and make it accessible to all students.

3. **Provide adequate study spaces:** Provide an adequate and sound-proof library to avoid destruction during study. Additionally, create more study spaces across the campus.
4. **Monitor attendance:** Implement a system to monitor and encourage regular class attendance, including attendance tracking and reward systems for good attendance.
5. **Support interactive teaching:** Provide training for instructors on interactive teaching methods and allocate resources for the use of technology in teaching.

7.2 To Instructors

The instructor shall:

1. **Focus on interactive class employment:** Focus on interactive class employment and good class management. It is important to have activities for the improvement of students' academic performance.
2. **Align assessments:** Ensure the assessment technique shall be aligned with the course objective and course content.
3. **Provide timely feedback:** Provide timely feedback on assignments and assessments to help students improve.
4. **Use diverse teaching methods:** Use a variety of teaching methods and visual aids to enhance understanding and engagement.

7.3 To Students

The student should:

1. **Strengthen class attendance:** Emphasize the strengthening of attending class regularly and avoid unnecessary absences.
2. **Give priority to class:** Give priority to the class over other activities and manage time effectively.
3. **Submit assignments promptly:** Submit their assignments promptly to improve their academic performance.
4. **Develop effective study habits:** Develop consistent study schedules, review class notes regularly, and avoid procrastination.

7.4 To Other Stakeholders

1. **Ministry of Health:** Consider the quality of health science education as a priority and allocate adequate resources for educational institutions.
2. **Professional Regulatory Bodies:** Strengthen accreditation and quality assurance mechanisms for health science programs.

3. **Ministry of Education:** Develop policies to support health science education, including infrastructure development and faculty training.

8. LIMITATIONS

This study has several limitations:

1. **Cross-sectional design:** This study is cross-sectional, making it difficult to draw long-term conclusions and establish causal relationships between the identified factors and academic performance.
2. **Self-reported data:** The study relied on self-reported data, which may be subject to social desirability bias and recall bias.
3. **Single institution:** The study was conducted at a single institution, limiting the generalizability of the findings to other institutions and settings.
4. **Quantitative approach:** The results of this research were solely based on quantitative techniques, with no qualitative data being used to supplement the findings. Future studies should incorporate qualitative methods to gain deeper insights into the factors affecting academic performance.
5. **Limited variables:** The study did not explore all potential factors that may affect academic performance, such as psychological factors, family support, and peer influence.

9. DECLARATIONS

9.1 Acknowledgments

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9.2 Funding

PHSC has funded this research.

9.3 Declaration

I hereby declare that the information given above and in the enclosed document is true to the best of my knowledge and belief, and nothing has been concealed therein. I understand that if the information given by me is proven not to be true, I will have to face the punishment as per the law.

9.4 Availability of Data and Materials

The source of the data is available to the corresponding author upon reasonable request by concerned individuals.

9.5 Authors' Contributions

For this study, DGG, TBJ, AKA, SDB, and DBF designed, wrote the results, and prepared the manuscript. And again, a highly participatory interpretation and

analysis of this research finding. All authors approved the final manuscript of this research.

9.6 Ethics Approval and Consent

For this research, Ethical clearance was obtained from the Ethical Review Committee of PHSC in Ethiopia. After a formal letter was written, the study area was started and verbal consent was obtained from participants.

9.7 Competing Interests

There are no competing interests among the author and coauthors.

10. ABBREVIATIONS

Abbreviation	Full Form
AP	Academic Performance
BGRS	Benishangul Gumuz Regional State
CGPA	Cumulative Grade Point Average
EFY	Ethiopian Fiscal Year
EMS	Emergency Medical Technicians
GAP	Good Academic Performance
HIT	Health Information Technicians
PHSC	Pawi Health Science College
SMART	Study Management and Academic Results Test
SPSS	Statistical Package for Social Science

REFERENCES

Akareem, H. S., & Hossain, S. S. (2016). Determinants of education quality: What makes students' perception different? *Open Review of Educational Research*, 3(1), 52-67.

Alani, F. S., & Hawas, A. T. (2021). Factors affecting students academic performance: A case study of Sohar University. *Psychology and Education*, 58(5), 4624-4635.

Ali, F., Omar, R., & Amin, M. (2013). An examination of the relationships between physical environment, perceived value, image and behavioural Intentions: A SEM approach towards Malaysian resort hotels. *Journal of Hotel and Tourism Management*, 27(2), 9-26.

Al-Tameemi, R. A. N., Johnson, C., Gitay, R., Abdel-Salam, A.-S. G., Al Hazaa, K., BenSaid, A., et al. (2023).

Determinants of poor academic performance among undergraduate students—A systematic literature review. *International Journal of Educational Research Open*, 4, 100232.

Alzoubi, H., & Ahmed, G. (2022). Perceived factors affecting students academic performance. *Academy of Strategic Management Journal*, 21(4).

Ayenew, E., & Yohannes, A. G. (2022). Assessing higher education exit exam in Ethiopia: Practices, challenges and prospects. *Science Journal of Education*, 10(2), 79-86.

Fajar, S., Hussain, M., Sarwar, H., Afzal, M., & Gilani, S. A. (2019). Factors affecting academic performance of undergraduate nursing students. *International Journal of Social Sciences and Management*, 6(1), 7-16.

Franke, G. H., Jagla-Franke, M., Küch, D., & Petrowski, K. (2021). A new routine for analyzing brief symptom inventory profiles in chronic pain patients to evaluate psychological comorbidity. *Frontiers in Psychology*, 12, 692545.

Gedefaw, A., Tilahun, B., & Asefa, A. (2015). Predictors of self-reported academic performance among undergraduate medical students of Hawassa University, Ethiopia. *Advances in Medical Education and Practice*, 305-315.

Hailu, M., Abie, A., Getie, M., Dagnaw, T. E., Worku, N., Esubalew, D., et al. (2024). Magnitude of academic performance and its associated factors among health science students at Eastern Ethiopia University's 2022. *BMC Medical Education*, 24(1), 1288.

Jabeen, F., Faisal, M. N., & I. Katsiolouides, M. (2017). Entrepreneurial mindset and the role of universities as strategic drivers of entrepreneurship: Evidence from the United Arab Emirates. *Journal of Small Business and Enterprise Development*, 24(1), 136-157.

Kassaw, C., & Demareva, V. (2024). Predictor of low academic achievement among Dilla university students, southern Ethiopia, 2024. *Frontiers in Education*, 9.

Malik, R. S. (2018). Educational challenges in 21st century and sustainable development. *Journal of Sustainable Development Education and Research*, 2(1), 9-20.

Mekonnen Yimer, B., Herut, A. H., Demissie, M. M., Bareke, M. L., Agezew, B. H., Dedho, N. H., et al. (2024). Trends of higher education enrolment, graduation, and employment in Ethiopia: an empirical analysis. *Cogent Education*, 11(1), 2302623.

Norazlan, N., Yusuf, S., & Al-Majdhoub, F. M. H. (2020). The financial problems and academic performance among public university students in Malaysia. *The Asian Journal of Professional & Business Studies*, 1(2).

Oppong-Sekyere, D., Oppong-Sekyere, F., & Akpalu, M. (2013). Some factors influencing the academic performance of junior high school pupils in English Language: The case of Assin North Municipality, Ghana. *International Journal of English and Literature*, 4(5), 226-235.

Ratts, M. J., Singh, A. A., Nassar-McMillan, S., Butler, S. K., & McCullough, J. R. (2016). Multicultural and social justice counseling competencies: Guidelines for the counseling profession. *Journal of Multicultural Counseling and Development*, 44(1), 28-48.

Siachifuwe, M. (2017). Teacher based factors influencing academic performance among learners in open learning classes at Twin Palm Secondary School, Lusaka, Zambia. *International Journal of Humanities Social Sciences and Education (IJHSSE)*, 4(12), 96-101.

Tekle, A., Areaya, S., & Habtamu, G. (2025). Alignment of TVET occupational competency assessment practices with strategic goals in Ethiopia. *International Journal of Training Research*, 1-23.

Toru, T., Beyene, B., Adrar, W., Sahilu, D., & Anmut, W. (2019). Academic Achievement and Associated Factors Among Students In Mizan Aman College Of Health Science, Southwest Ethiopia.

Wilkins, S., Hazzam, J., & Lean, J. (2021). Doctoral publishing as professional development for an academic career in higher education. *The International Journal of Management Education*, 19(1), 100459.

Wu, H., Bai, S., Liao, Y., & Tan, C. (2024). The academic performance and upward mobility of students in education program. *Journal of World Englishes and Educational Practices*, 6(1), 137-166.

Yohannes, A. (2023). Exploring The Opportunities And Challenges Of Social Media In The Teaching And Learning Process At Public Universities In Ethiopia: In The Case Of Wollo University.