Factors Affecting the Academic Performance among Students at Faculty of Medical Laboratory Science

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ABSTRACT

Introduction: Academic performance of medical laboratory students is influenced by multiple factors. All schools, colleges and universities have no worth without students. Students are the most essential asset for any educational institute. The social and economic development of the country is directly linked with student academic performance. The aim of this study is to determine the factors influencing the academic performance of students at the Faculty of Medical Laboratory Science.

Material and Methods:

- **Study Design:** A descriptive cross-sectional study.

- **Study area:** Faculty of medical laboratory science/the international university of Africa, Khartoum, Sudan. Duration of Study: from February 2021 to June 2021. A self-administered questionnaire by Google form was being used. Medical laboratory students batch 3 and 4 with a cumulative grade point average (CGPA) of 3.5 (out of 4) were included and compared to medical laboratory students with a CGPA (Less than 2.5) who were available at the time of the study Students in the third and fourth class. Data were analyzed by the SPSS version23.

Results: A total of 260 undergraduate medical laboratory students participated in the study.215 of them with a CGPA of 3.5 or more and 45students with a CGPA of less than 2.5. This study showed a statistically significant relationship between performance, disease or disability of the medical laboratory student him\herself, education level of father, presence of a physician in the family, admission to the faculty whether it is general or private, secondary school certificate type, number of secondary schools examination attempts, sleeping hours per day, attendance to all academic and clinical laboratory activities and students own notes as a primary source of studying (p-value < 0.05).

Conclusion: The study, therefore, concluded that students' academic performance could be influenced by some other factors which should be investigated in future research.

Introduction

Students' academic performance is very important and attracts the attention of all those involved in the higher education system [1-3]. For any educational institute, students are the most important asset. Universities and colleges have no value without students. The economic and social development of a country is directly associated with the academic performance of students. The student's academic performance plays a vital role in creating the finest quality alumnae who will become leaders and manpower of a particular country, consequently responsible for the country's social and economic development [4]. The academic performance of the students' has gained significant attention in past research. The performance of students is affected by psychological, economic, social, personal and environmental factors. Though these factors strongly influence the performance of the students, these factors differ from country to country and person to person. In this era of globalization and technological revolution, education is considered the first step for every human activity. It plays a vital role in the development of human capital and is linked with an individual's well-being and opportunities for better living [5]. It ensures the acquisition of knowledge and skills that enable individuals to increase their productivity and improve their quality of life.

This increase in productivity also leads to new sources of earning which enhances the economic growth of a country [6]. The quality of students' performance remains a top priority for educators. It is meant for making a difference locally, regionally, nationally and globally. Educators, trainers, and researchers have long been interested in exploring variables contributing effectively to the quality of performance of learners. These variables are inside and outside universities that affect students' quality of academic achievement. These factors may be termed student factors, family factors, school factors and peer factors [7]. Generally, these factors include age, gender, geographical belongingness, ethnicity, marital status, Socioeconomic Status (SES), parent's education level, parental profession, language, income and religious affiliations. Besides other factors, socioeconomic status is one of the most researched and debated factors among educational professionals that contribute to the academic performance of students. The most prevalent argument is that the socioeconomic status of learners affects the quality of their academic performance. Most experts argue that the low socioeconomic status has a negative effect on the academic performance of students because the basic needs of students remain unfulfilled and hence, they do not perform better academically [8-10]. The low socioeconomic status causes environmental deficiencies which results in the low self-esteem of students [9]. More specifically, this study aims to identify and analyze factors that affect the students' academic performance in medical laboratory sciences.

Rationale

In medical college when students are enrolled and start learning activities, their academic performance varies widely. Some students try to do their best to stay at the top level, while others barely try to pass; finding out why some students perform well academically and the factors that affect students' performance is important, as this understanding can then be used to promote the factors that contribute to high academic performance and achieve institution/ universities desired outcome. Some currently study stated the obvious effect of pre-admission criteria, socio-demographic factors, study habits and learning styles on medical laboratory students' performance.

Materials and Methods

Study Design

A descriptive cross-sectional study.

Study Area

The study has been conducted in the Faculty of the medical laboratory science/ international university of Africa a private university in Khartoum, Sudan. It is a member of the federation of the universities of the Islamic world. The university has faculties of education and humanities, shariah and Islamic studies, of pure and applied science, medicine and engineering.

Study Population

It included all the Students of medical laboratory science/ international university of Africa batch 3 and 4.

Inclusion Criteria

- Students in the third and fourth year

- Students with excellent academic performance (The Cumulative Grade Point Average (CGPA) equals or more than 3.5 was considered as excellent academic performance).

- Students with low performance (The Cumulative Grade Point Average (CGPA) less than 2.5 was considered as poor academic performance)

- Final year (4th year) students have the greatest undergraduate academic experience. The Cumulative Grade Point Average (CGPA) will reflect the academic performance during the whole period.

- Exclusion Criteria

- Students in first, second batch.

- Students with moderate performance.

- Students who refuse to participate in the study.

Sample Size

Total covers for all students fit in inclusion criteria at the time of the study.

Data Collection Tool

In this study, the tool of data collection used was a Self-administered Questionnaire by Google form. The questionnaire includes sex, age, CGPA, academic performance, study habits and learning style, motivation in studying medicine, medical illness, economic and social factors.

Designing & Validation of Questionnaire

A prior literature search was done for factors that affect the academic performance of students [10,11]. The questionnaire had 30 questions in English by Google form focusing on important factors associated with the academic performance of the students:

- Individual factors like interest, problems related to language/ understanding.

- Factors related to pre-admission.

- Impact of teaching-learning methods used.

- Factors related to the learning style.

- Factors pertaining to family.

The majority of questions had responses graded on a Likert scale of 1 to 5, while some had clear options given to identify specific factors.

Data Management and Analysis

The collected data was cleaned, coded, entered in a master sheet and analyzed by statistical package for social science (IBM SPSS Inc.Chicago, version no 23) software. Chi-square test will be used for comparing categorical data; the level of significance will be set at 0.05, the table will be constructed using Microsoft word.

Results

The total number of students induced in this study in the clerkship period was 525 students. 267 students were in the semester [8], while 258 were in the semester [12]. The number of students with low academic performance CGPA of less than 2.5 was 52. 45 of them accepted to participate in the study (response rate is 17.2%) Which is enough samples of the 52 students with 95%. Confidence level and 25.7% confidence interval 281 students with CGPA 3.5 or more, 216 of them accept to participate in the study with (82.8%) response. Out of the 525 students, 171 were males which is (32.6%) while 354 (67.4%) were females. It was approximately the same percentage of participants in the study (20 out of 73 were male 28.1%). Also out of the 45 students with a CGPA of less than 2.5, four were male (17.3%). This ratio of male to female students is reflective of the overall student population. Gender does not affect the academic performance of the participants in this study (Figure 1). 260 students responded to the questions about social, family and marital status. Out of them only two students (2.7%) were married both of them were females. 3 divorced medical students were found (1.2%). The following factors were assessed (Marital status, family size whether the student now lives with his family or in the university hostel or not and the presence of family problems such as disease or disability, divorced parents, death of a family member). They were found not significantly affect the academic performance of the study population. (P-value < 0.05) see Tables 1-3 and Figure 2. In contrast, chronic medical problems and diseases during the study period of the medical laboratory student her\himself significantly affect their academic performance. (P value=0.023) (Table 3).
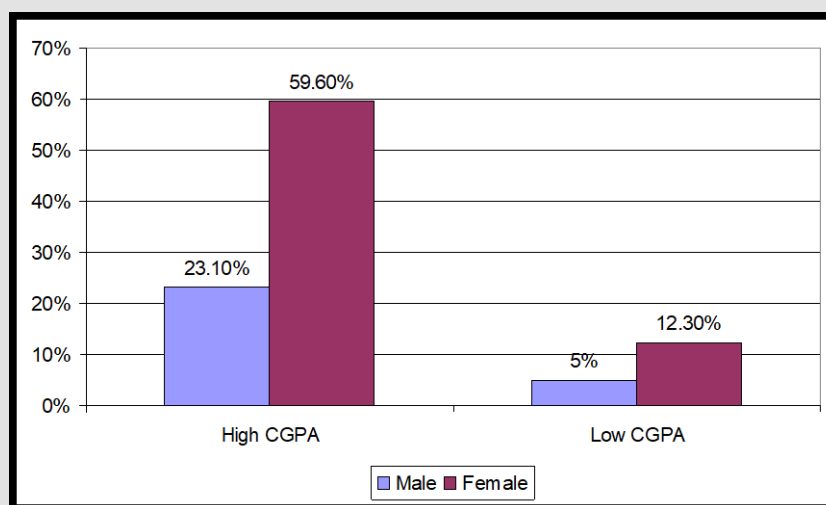

Figure 1: Correlation between gender of participants and academic performance of medical laboratory students.
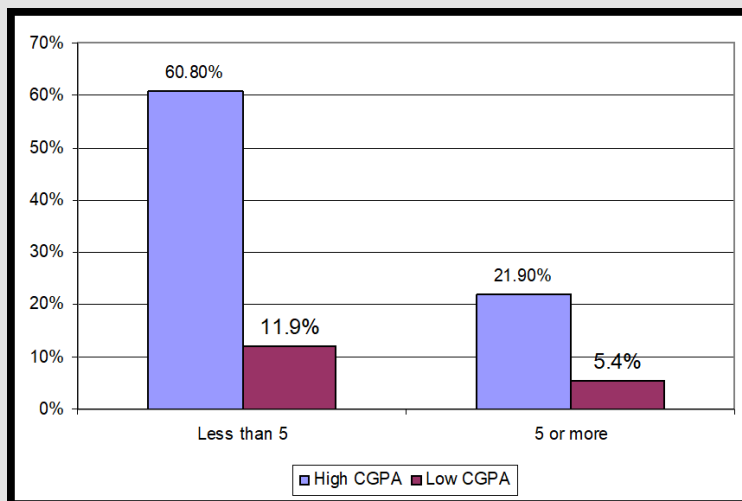
Figure 2: Correlation between family size of participants and academic performance of medical laboratory students.

Table 1: Correlation between social status of participants and academic performance of medical laboratory students.

Social Status	High CGPA	Low CGPA	Total	P. value
Single	190 (73.1%)	43 (16.5%)	233 (89.6%)	0.365
Married with Children	11 (4.2%)	2 (0.8%)	13 (5%)	
Married without children	11 (4.2%)	0 (0%)	11 (4.2%)	
Divorced	3 (1.2%)	0.0%)	3 (1.2%)	

Table 2: Correlation between presence with family of participants and academic performance of medical laboratory students.

	High CGPA	Low CGPA	Total	P. value
Live with family	High CGPA	Low CGPA		
Yes	119 (45.8%)	29 (11.2%)	148 (56.9%)	0.041
No	96 (36.9%)	16 (6.2%)	112 (43.1%)	0.17

Table 3: Correlation between family suffering of participants and academic performance of medical laboratory students.

Problem in family	High CGPA	Low CGPA	Total	P. value
Chronic illness	40 (15.4%)	5 (1.9%)	45 (17.3%)	
Death of a fist relative during medical studying	35 (13.5%)	5 (1.9%)	40 (15.4%)	0.023
Divorced parents	16 (6.2%)	3 (1.2%)	19 (7.3%)	0.391
No problem	124 (47.7%)	32 (12.3%)	156 (60%)	

The social-economic status of the student's families was not found to significantly influence their academic performance (P-value > 0.05). Whether the student is financially supported by parents or another family member, relative or supported her\himself was not found to significantly influence their academic performance (P-value > 0.05) (Table 4). Parents' level of education and the mother's profession and the presence of physicians as guidance in the family were assessed and found not statistically affect medical students' academic performance. The profession of the father both influences the academic performance of the medical student. (P values = 0.021 and 0.180 respectively) (Tables 5-7) and (Figure 3). Preadmission criteria like admission to the university whether general or private influence the academic performance of the students. (P values = 0.002) (Table 8). Secondary school examination type and the number of secondary school examination attempts were both not statistically influence the academic performance of the students. P values = (0.241 and 0.345 respectively) (Table 9). English language proficiency was assessed and it had no significant effect on the academic performance (P-value = 0.222) (Table 10). Time spent on TV has no significance (p values =0.957 value for no watching) (Table11). Networking, chatting social has a significant influence on the academic performance of the students when more than 4

hours (p values =0.035) (Table 11). Sleeping hours per day showed no a significant correlation with academic performance when less than 6 hours (p value=0.541) and a significant correlation with academic performance when sleeping between 6-8 hours (p value= 0.048) (Table 12).
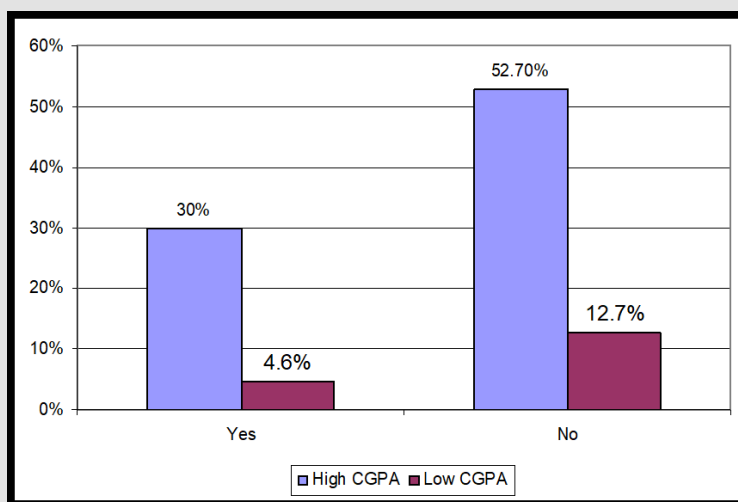

Figure 3: Correlation between Physician in family as guidance of participants and academic performance of medical laboratory students.

Table 4: Correlation between financial support of participants and academic performance of medical laboratory students (Financial support).

Financial support	High CGPA	Low CGPA	Total	P. value
Self	1 (0.4%)	0 (0%)	1 (0.4%)	0.721
Parents	190 (72.6%)	37 (13.7%)	(86.3%)	
Husband	7 (2.7%)	0 (0%)	(2.7%)	
Other relative	19 (6.8%)	7 (2.7%)	(9.6%)	

Table 5: Correlation between economic status of participants and academic performance of medical laboratory students.

Economic Status	High CGPA	Low CGPA	Total	P. value
High	(8.1%)	(1.2%)	(9.2%)	0.651
Moderate	(65%)	(13.5%)	(78.5%)	
Low	(9.6%)	(2.7%)	(12.3%)	

Table 6: Correlation between parent education of participants and academic performance of medical laboratory students.

Father Education	High CGPA	Low CGPA	Total	P. value
Illiterate	14 (5.4%)	7 (2.7%)	21 (8.1%)	0.407
Primary	30 (11.5%)	6 2.3%)	36 (13.8%)	
Secondary	74 (28.5%)	12 (4.6%)	86 (33.1%)	
Graduate	62 (23.8%)	12 (4.6%)	74 (28.5%)	
Post-graduate	33 (12.7%)	8 (3.1%)	41 (15.8%)	
Mother Education	**High CGPA**	**Low CGPA**	**Total**	**P. value**
Illiterate	20 (7.7%)	3 (1.2%)	23 (8.8%)	0.198
Primary	40 (15.4%)	12 (4.6%)	52 (20%)	
Secondary	97 (37.7%)	16 (6.2%)	113 (43.5%)	
Graduate	44 (16.9%)	7 (2.7%)	51 (19.6%)	
Post-graduate	13 (5.0%)	7 (2.7%)	20 (7.7%)	0.04

Table 7: Correlation between parent occupation of participants and academic performance of medical laboratory students.

Father occupation	High CGPA	Low CGPA	Total	P. value
Employee	175 (67.3%)	29 (11.2%)	204 (78.5%)	0.021
Employer	6 (2.3%)	6 (2.3%)	12 (4.6%)	
Labor	27 (10.4%)	0 (0%)	27 (10.4%)	
Others	6 (2.3%)	11(4.2%)	6 (2.3%)	
Inapplicable	0 (0%)	0 (0%)	11 (4.2%)	
Mother occupation	**High CGPA**	**Low CGPA**	**Total**	**P. value**
Employee	102 (39.2%)	31 (11.9%)	(71.1%)	0.189
Employer	112 (43.1%)	13 (5%)	(48.1%)	
Labor	2 (0.8%)	0 (0%)	(0.8%)	
Others	0	0	(0%)	
Inapplicable	0	0	(0%)	

Table 8: Correlation between admission to the University (higher secondary school) of Participants and academic performance of medical laboratory students.

Secondary Certificate	High CGPA	Low CGPA	Total	P. value
Sudanese	168 (64.6%)	41 (15.8%)	209 (80.4%)	0.002
Arabic	39 (15%)	4 1.5%)	43 (16.5%)	
Igcse	1 (0.4%)	0	1 (0.4%)	
Other	7 (2.7%)	0	7 (2.7%)	

Table 9: Correlation between preadmission criteria Secondary School exam attempted and academic performance of medical laboratory students.

	High CGPA	Low CGPA	Total	P. value
One	171 (65.8%)	25 (9.6%)	196 (75.4%)	0.241
Two	43 (16.5%)	15 (5.8%	57 (21.9%)	
Three or more	3 (1.2%)	4 (1.5%)	7 (2.7%)	

Table 10: Correlation between preadmission criteria of English language proficiency and academic performance of medical laboratory students.

English Proficiency	High CGPA	Low CGPA	Total	P. value
Fluent	22 (8.5%)	1 (0.4%)	23 (8.8%)	0.222
Good	152 (58.5%)	34 (13.1%)	186 (71.5%)	
Deficient	41 (15.8%)	10 (3.8%)	51 (19.6%)	

Table 11: Correlation between preadmission criteria of Time extended on T.V & social network /chatting and academic performance of medical laboratory students.

Time on T.V	High CGPA	Low CGPA	Total	P. value
Not watching	57 (21.9%)	13 (5%)	70 (26.9%)	0.957
Less than 2 hours	80 (30.8%)	15 (5.8%)	95 (36.5%)	
2-4 hours	48 (18.5%)	11 (4.2%)	59 (22.7%)	
More than 4 hours	30 (11.5%)	6 (2.3%)	36 (13.8%)	
Time on social network/chatting	**High CGPA**	**Low CGPA**	**Total**	**P. value**
Never	11 (4.2%)	2 (0.8%)	13 (5%)	0.509
Less than 2 hours	54 (20.8%)	9 (3.5%)	63 (24.2%)	
2-4 hours	71 (27.3%)	12 (4.6%)	83 (31.9%)	
More than 4 hours	79 (30.4%)	22 (8.5%)	101 (38.8%)	0.036

Table 12: Correlation between preadmission criteria Sleeping hours a day and academic performance of medical laboratory students.

Sleeping hours/a day	High CGPA	Low CGPA	Total	P. value
Less than 6 hours	56 (21.5%)	14 (26.9%)	70 (26.9%)	0.541
6-8 hours	129 (49.6%)	23 (8.8%)	152 (58.5%)	0.048
More than 8 hours	30 (11.5%)	8 (3.1%)	38 (14.6%)	

There was no significant difference between those who had higher or lower CGPA when it came to motivation to study, studying in a group alone or with one colleague, studying hours per day, studying hours at weekends and the use of the following while studying (Mapping, Note Forming, Highlighting, Summarizing, recording, etc) (P-value > 0.05) (Tables 13 & 14). What students did when facing difficulty in studying had no influence on their academic performance (P-value = 0.696) (Table 15). How they spend their vacation had no influence on their academic performance (P-value = 0.447) (Table 16). The most commonly used reading resources among students are the internet and other resources like watching video lectures. While the least used were Using textbooks as the primary source of knowledge, handouts and notes were not correlated to the academic performance, while using the internet showed a positive influence on the outcome (p-value 0.011) (Table 17). Using other reading resources like textbook notes as the primary resource was associated with poor academic performance (P-value 0.005) (Figure 4). Attendance of the students is excellent in all activities in practical sessions, lectures, tutorials, PBL and clinical teaching (Figure 5). Significant differences were observed between the two groups with regard to the attendance of lectures, tutorials, practical sessions, PBL activities and clinical teaching. P values = (0.011- 0.000- 0.000- 0.013- 0.000 respectively) (Table 5).

Table 13: Correlation between preadmission criteria Motivation to study and academic performance of medical laboratory students.

	High CGPA	Low CGPA	Total	P. value
Enjoy studying	79 (30.4%)	16 (6.2%)	95 (36.5%)	0.642
Had high scores	34 (13.1%)	10 (3.8%)	44 (16.9%)	
Pressed by family	29 (11.2%)	3 (1.2%)	32 (12.3%)	
Want to get a scholarship/get hired by the university.	45 (17.3%)	9 (3.5%)	54 (208%)	
do not feel motivated	28 (108%)	7 (2.7%)	35 (13.5%)	

Table 14: Correlation between preadmission criteria studying habits and academic performance of medical laboratory students.

	High CGPA	Low CGPA	Total	P. value
I used to study				
Alone	130 (50%)	20 (7.7%)	150 (57.7%)	0.83
With one of my colleague	46 (17.7%)	9 (3.5%)	55 (21.2%)	
In group	39 (15%)	16 (6.2%)	55 (21.2%)	
Studying hour/a day				
Don't study daily	75 (28.8%)	21 (8.1%)	96 (36.9%)	0.468
Less than 2 hours	30 (11.5%)	4 (1.5%)	34 (13.3%)	
2-4 hours	79 (30.4%)	15 (5.8%)	94 (36.2%)	
More than 4 hours	31 (11.9%)	5 (1.9%)	36 (13.8%)	

Table 15: Correlation between preadmission criteria Facing difficulty and academic performance of medical laboratory students.

	High CGPA	Low CGPA	Total	P. value
when facing difficulty				
Self-directed learning	82 (31.5%)	13 (5%)	95 (36.5%)	0.696
Ask faculty member	31 (11.9%)	7 (2.7%)	38 (14.6%)	
Ask colleague	91 (35%)	22 (8.5%)	113 (43.5%)	
Skip it	11 (4.2%)	3 (1.2%)	14 (5.4%)	

Table 16: Correlation between preadmission criteria activity during vacation and academic performance of medical laboratory students.

	High CGPA	Low CGPA	Total	P. value
Activity During Vacation:				
Conduct research	15 (5.8%)	4 (1.5%)	19 (7.3%)	0.447
Enjoy vacation	126 (48.5%)	30 (11.5%)	156 (60%)	
Have clinical training	50 (19.2%)	7 (2.7%)	57 (21.9%)	
Start reading for the next year subjects	20 (7.7%)	2 (0.8%)	22 (8.5%)	
Working	4 (1.5%)	2 (0.8%)	6 (2.3%)	

Table 16: Correlation between preadmission criteria Weekend studying hours and academic performance of medical laboratory students.

	High CGPA	Low CGPA	Total	P. value
Do not study	54 (17.3%)	14 (5.4%)	68 (26.2%)	0.622
Less than 5 hours	84 (32.3%)	13 (5%)	97 (37.3%)	
6-8 hours	45 (17.3%)	11 (4.2%)	56 (21.5%)	
More than 8 hours	32 (12.3%)	7 (2.7%)	39 (15%)	

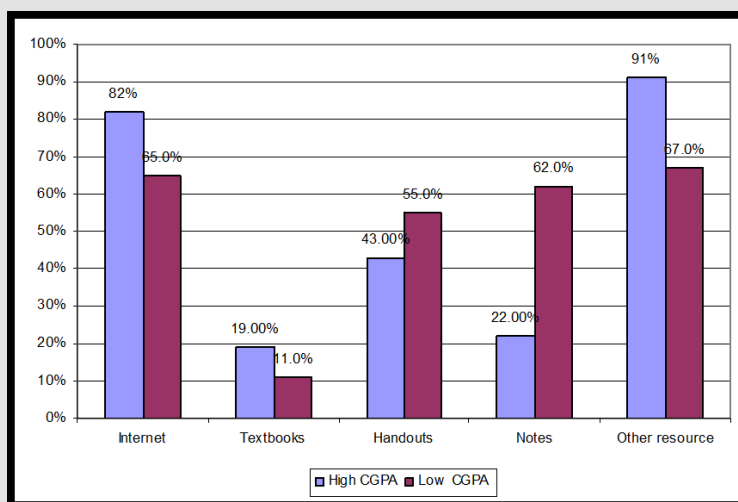**Figure 4:** Correlation between Physician in family as guidance of participants and academic performance of medical laboratory students.
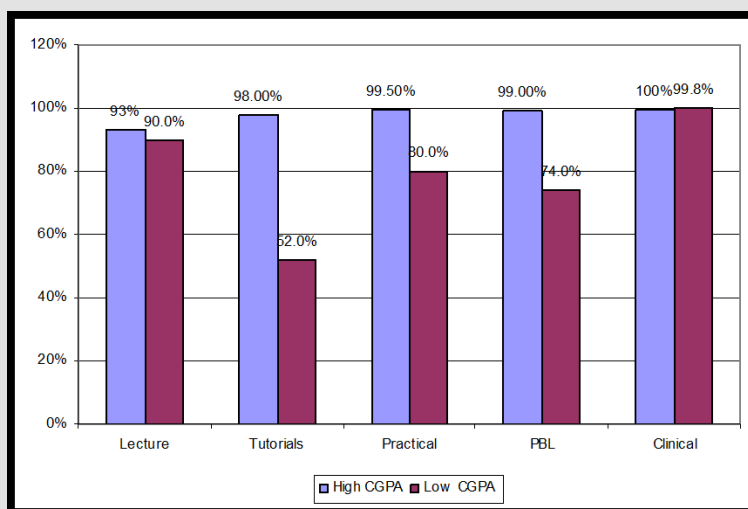

Figure 5: Correlation between the percentage of attendance of academic activities and academic performance of medical laboratory students.

Discussion

Identifying the factors that can lead to the good academic performance of medical laboratory students is an interesting element of medical education. This study shows that there is a statistically significant link between good performance and the medical student's own condition or handicap, the Father's occupation, presence with family, and a chronic medical condition during medical studying (Bronchial asthma, Migraine, Insulin-dependent Diabetes Mellitus and corrected congenital heart defect are some examples). admittance to the faculty, whether general or private, secondary school certificate type, sleeping hours per day between 6-8 hours, attendance to all academic and clinical activities and students 's own notes and textbooks as a primary source of studying (P-value < 0.05). In this study, 45 out of 260 students had the academic performance of 50% of these medical laboratory students was low. As a result, the existence of chronic medical disease has an impact on a medical laboratory student's academic performance during the period of the study (p-value 0.023).

There had been little previous research on the impact of medical diseases on academic performance, but it was obvious from this study that medical diseases had an impact on students' attendance and sleep (P value less than 0.05). Another issue that was not considered was stress. Anxiety and tension levels were extremely high, and the percentage of medical laboratory students (92%) was the same [13]. Regarding the father profession, 27 (10.4%) mentioned that their fathers were laborer's. All of them had an excellent academic performance. They may feel motivated or pressed by family. Another study in Sudan found eight medical students mentioned that their fathers were laborer's. All of them had an excellent academic performance. They may feel motivated or pressed by family. P-value 0.002. No reason was suggested in the previous studies [14]. In 90 (34.6%) of the participants' families, doctors were present. The presence of physicians in the family as guidance has no good effect on medical students' performance. Al Shawwa et al. discovered the opposite of this result [2].

Admissions to universities, whether general or private, have an impact on students' academic performance, according to our study. In contrast to Mohamed's study in Sudan, eleven medical students were granted private entrance to medical school. Six (54.5%) of them had poor academic performance. It is apparent that medical students who received private admission performed worse than those who received general admission one p-value of 0.002. Increasing the number of SSCE tries also had a detrimental impact on performance [15]. At Nile Valley University, a study was done to compare the academic performance of private admission medical students to their public admission colleagues. Between private and public admission students, there were statistically significant variations in academic performance. While only 78.4% of private admission students progressed without delay, 90% of the public admission students did so. The pass rate in all phases of medical study as well as the Cumulative Grade Point Average (CGPA) was lower among private admission students. Of re-sits [16]. This difference is proportionate to the difference in grades obtained at SSCE and the number of re-sits [17].

In addition, Better performance was found in students with non-Sudanese non-Arabic secondary school certificates, while the lowest performance was observed among students with Arabic secondary school certificates p-value of 0.000 Similar to the result conducted at the University of Gezira, Sudan [18]. The majority of the medical students with high CGPA sleep between six to eight hours 129 (49.6%) (Both sleeping more than eight hours and sleeping less than six hours per day is associated with poor academic performance. Bahmamm et al stated that decreased nocturnal sleep time, late bedtimes during weekdays and weekends and increased daytime sleepiness are negatively associated with academic performance in medical students [19,20]. Partial sleep impecunious (less than 6 hours of sleep per night) can lead to a lack of attention, attentiveness, remembrance, and judgmental thinking in a person's day to day life [21]. Attending each one of the activities is strongly linked to excellent academic performance in our study. The negative correlation for poor performance suggests the value of monitoring attendance and identifying students at risk for poor performance [22]. This study with Mohamed in the University of Gezira, Sudan showed different results [18] that medical laboratory students had less attending lectures and tutorials compared with clinical and practical sessions.

It is concluded that making lecture attendance mandatory by educators may adversely affect the performance of some students not attending lectures since some students with poor attendance achieved outstanding academic performance [23]. So making lectures and tutorials more interesting for medical students may be better than mandatory attendance which sometimes seems the only solution. Attendance could be enhanced by combining classroom instruction with hospital and laboratory training. There would be a significant increase in attendance if there were sign-in sheets, fewer gaps between sessions, and numerous lectures on the same day. Medical laboratory schools could examine these variables in the future to improve student motivation to attend classes [24]. In our study, no other social or family characteristics were identified to have an impact on the academic performance of medical laboratory students. Gender, marital status, family size, socioeconomic condition of the family, degree of education of the parents, and the mother's career are some examples of these characteristics. Whether the student lives with his family is affect academic performance and significant relationships. English language proficiency was one of the pre-admission criteria that had

no effect on academic success. According to the same result by Al Shawwa et al, a poor command of the English language appears to be a significant negative factor in medical laboratory students' academic performance [2].

Video tutorials and the internet were the least used resources among pupils. Multimedia learning has been found to be beneficial in the training of clinical laboratory skills. Learners, on the other hand, have both opportunities and obstacles when using technology. The purpose of this study was to look into how students used and perceived online clinical videos for learning laboratory skills [25]. E-learning laboratory education is offered in a variety of ways. Offering online films on laboratory skills is a popular format among them. Although medical laboratory videos have been shown to improve learning outcomes, there is a lack of study on how to make them more effective. Furthermore, there is little guidance on how to integrate e-learning into the curriculum despite the recommendation that information technology resources be an integral part of supporting the clinical and laboratory skills curriculum [25-44].

Conclusion

This study set out to detect the factors affecting the performance of undergraduate students in the international universities of Africa in a medical laboratory with a view to understanding some of the factors for success that may lead to innovative ways of providing a more successful academic atmosphere for students and university. We found in this study the Father's occupation, presence with family, and a chronic medical condition during medical studying (Bronchial asthma, Migraine, Insulin-dependent Diabetes Mellitus and corrected congenital heart defect are some examples). admittance to the faculty, whether general or private, secondary school certificate type, sleeping hours per day between 6-8 hours, attendance to all academic and clinical activities and students discovered a statistically significant link between good performance and the medical laboratory students.

Funding

No fund have been received.

Availability of Data and Materials

All the data used in the study are available from the first and corresponding author on reasonable request.

Ethics Approval for the Study

Obtained from the research ethical committee in IUA.

Conflict of interest

All authors declare that they have no conflict of interest and no fund have been received.

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