

# Innovations

## A Retrospective Study of Student Related Factors Affecting Academic Performance of Undergraduate Medical Students at KIMS and RF, Amalapuram, India

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**Abstract: Problem:** The achievement of learning objectives is determined by the student and their learning environment. No matter what affordances are offered to a student, learning will not take place if there are obstacles that seriously hamper their ability to participate. **Objectives:** This study was to determine student-related factors influencing academic performance. **Methodology:** A cross-sectional study was conducted in 133 interns in Konaseema Institute of Medical Sciences and Research foundation, Amalapuram . Data was collected using pretested semi-structured questionnaire through Google forms. Information about sociodemography , motivation ,study habits etc was collected .**Findings :**The mean age of the students is 22.46  $\pm$ 0.917 . The mean birth order of the students is 1.51. Out of 133 students, 39.8 % are males and 84.2 % are single.11.3 % students used to go to library for studying for more than four days in a week . 31.6 % students did not go to library for studying .Only 5.3 % students used to study for more than 4 hours a day . 87.5 % students who resat for exam more than once used to study for 0 to 2 hours per day .**Conclusion:** The study highlights the need for students to adopt a healthy lifestyle and manage stress levels to achieve academic success. The results can be used to develop interventions and strategies that can help students to overcome the challenges they face and achieve academic success.

**Keywords:** Academic performance, learning ,medical education ,student related factors ,undergraduate medical students

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### Introduction:

Medical education is a challenging curriculum with its own prospects and it needs very strenuous exercise both for the students and medical academicians . With the introduction of new competency based medical education curriculum and the standardisation of the syllabus and assessment , it demands the perseverance of the medical students in the academics to secure knowledge and score.

There were many identified student-related factors that influence learning, such as student characteristics and lifestyle, study habits, study attitudes, motivation for studying , nutrition , social media use ,addictions and socio economic status . The style of learning (i.e. surface, deep, or methodical achievement motivated) may also influence academic performance; students who practice deep and methodical learning tend to perform better than those who employ surface learning. However, Ferguson et al. noted that learning style could change in an individual and therefore this factor may be a moderate influencer of performance.<sup>(1)</sup>

Lifestyle factors such as diet ,sleep,recreation , physical activity etc also influence the academic performance of the students . Not just physical psychological factors are also responsible for the academic performance in the medical students .

The educational sector is one of several other sectors that utilized and were affected by information technology with regard to providing the educational process for learners (students). For instance, E-learning systems are widely used in educational sector which, in turn, made the learning process more flexible and easier. Moreover, many universities have employed information technology through creating their own

electronic portals and online programs that are totally taught electronically.<sup>(2)</sup> The impact of students' family backgrounds, socioeconomic status (SES), and school-related factors on their academic performances have been an important issue since the Coleman Report's publication.<sup>(3)</sup>

However, many students, especially in developing countries, generally perceive medical school to be rigorous and stressful and this leads to anxiety that often affects their academic performance. Since the achievement of learning outcomes is the primary goal of all stakeholders in medical education, learning experiences should be tailored to achieve this.<sup>(4)</sup>

Masry et al (2013) figured out that 76.8% of medical students of 6th year suffered from severe burnout and 71.7% of them understood a high level of stress.<sup>(5)</sup>

The effect of computer-assisted education on student's academic achievement is found to be strong.<sup>(6)</sup> Teaching methods such as peer learning and the use of e-learning technologies have been shown to enhance deep learning.<sup>(6-12)</sup>

The student and their learning environment determine the achievement of learning outcomes. Regardless of the affordances presented to a student, learning will not occur if factors exist that significantly compete with the students' ability to engage.

The aim of the present study was to determine student-related factors influencing academic performance.

### **Materials and methods:**

The cross-sectional study was conducted in Konaseema Institute of Medical Sciences and Research Foundation, Amalapuram in the month of March. 133 out of 150 interns (2018 admitted batch) gave the consent. Data was taken within one month of passing their final MBBS examination. Data was collected using pretested semi-structured questionnaire through Google forms. Information about socio demographic profile, motivation to study medicine, study habits, dietary habits, emotional status, recreation, extracurricular activities etc. The study did not require any investigations or interventions to be conducted on any human participants.

**Ethical issues:** Informed consent was taken from the participants and confidentiality of data had been ensured. There were no issues of beneficence and maleficence.

**Statistical analysis plan:** Data obtained through online Google forms was populated into Microsoft excel sheet. Analysis was done using SPSS version 22 applying appropriate statistical tests.

### **Results:**

#### **Demographic profile:**

Out of 150 students, 133 students participated in the study and filled the Google forms. The mean age of the students is  $22.46 \pm 0.917$ . The mean birth order of the students is 1.51. Out of 133 students, 39.8% are males and 84.2% are single. (Table No.1)

#### **Study habits of the students:**

Out of 39.8% male students, 87.5% students resat for exam more than once ( $p = 0.007$ ). 85.7% students had intrinsic motivation for studying medicine. 65.4% engage in recreational activities and 66.2% engage in extracurricular activities. 50% of students who engage in group studying resat for exams more than once ( $p = 0.68$ ). 96.2% of students revised before exams out of which 75% of the students resat for exam more than once ( $p = 0.029$ ). 61.7% of the students had the habit of taking down notes in the classroom out of which 25% resat for exams more than once. (Table No. 2)

23.3% students study everyday and 92.5% students use online resources for learning.

#### **Lifestyle factors :**

71.4% of the students take breakfast daily, 85.7% take lunch daily and 84.2% take dinner daily. There is no statistical significance between the students who resat for the exam > 1 and 0 – 1 times ( $p = 0.688$ ,  $p = 1.000$ ,  $p = 0.612$ ) respectively. 10.5% students go to bed daily before 10 pm. Only 15% students are always happy and there is correlation between the mood and resitting for the exam ( $p = 0.04$ ). 88% students feel stressful while preparing for examination. 69.2% feel stressful when they get less marks. 64.7% students have strong circle of friends. There is no correlation between stress and resitting for exams ( $p = 0.247$ ,  $p = 0.106$ ). 63.9% have good financial support.

11.3% students used to go to library for studying for more than four days in a week. 31.6% students did not go to library for studying. (Table No.3)

Only 5.3 % students used to study for more than 4 hours a day . 87.5 % students who resat for exam more than once used to study for 0 to 2 hours per day .(Table No.4)

## Discussion:

### Demographic profile of the students:

Out of 150 students , 133 students participated in the study and filled the Google forms . The mean age of the students is  $22.46 \pm 0.917$  . The mean birth order of the students is 1.51 . Out of 133 students ,39.8 % are males and 84.2 % are single.

### Study habits :

Male students are more likely to resit for exams more than once than female students, with a statistically significant p-value of 0.007. This suggests that there may be differences in study habits or motivation between male and female students that affect their performance on exams.

The majority of students (85.7%) were intrinsically motivated to study medicine. This is a positive finding, as intrinsic motivation is associated with higher academic achievement and persistence. Clayton B compared motivation for studying medicine between the UK and Ghanaian medical students and similarly reported that 63.5% and 75.0% were intrinsically motivated in Ghana and the UK, respectively .<sup>(13)</sup> Extrinsic factors that may influence students to study medicine include parents' influence; income of physicians, job security and lifestyle, respect accrued to a physician amongst others <sup>(13)</sup>.

Many students engage in recreational and extracurricular activities, which is also positive as it can lead to a more well-rounded and balanced student experience. However, it is unclear from the results whether there is any correlation between these activities and exam performance. Engaging in recreational and extracurricular activities was commoner among students with better academic performance but did not reach statistical significance, and a study conducted in Saudi Arabia reported the same. <sup>(14)</sup>

Group studying does not appear to be strongly correlated with exam performance, as there is no statistically significant difference in exam resits between those who engage in group studying and those who do not. In a study by Shawwa et al., 73.5% of students preferred to study alone, while only 7.5% preferred group study.<sup>(14)</sup>

The majority of students revised before exams, but interestingly, those who revised and resat for exams more than once had a statistically significant p-value of 0.029. This may suggest that some students are not revising effectively, or that there are other factors at play that contribute to exam resits. Taking notes in the classroom was a common habit among students, but there is no strong correlation between this habit and exam performance, as only 25% of those who took notes and resat for exams did so more than once.

Ideally, students are expected to engage in substantial hours of study to achieve their course objectives; however, the details of the course content and the student's learning styles may significantly affect the achievement of this goal. Authors have argued that both quantity and quality of study is essential for academic success, since long hours of consuming but ineffective study is counterproductive<sup>(15,16)</sup>

A large proportion of students use online resources for learning, which is not surprising given the prevalence of technology in education today.<sup>(17)</sup>

### Lifestyle factors:

Many students engage in recreational and extracurricular activities, which is also positive as it can lead to a more well-rounded and balanced student experience. However, it is unclear from the results whether there is any correlation between these activities and exam performance and a study conducted in Saudi Arabia reported the same.<sup>(14)</sup>

According to the results, a high percentage of students take their meals daily, with the majority taking lunch and dinner every day. However, only 71.4% of students take breakfast daily, which indicates a scope for improvement in terms of adopting a healthy lifestyle. Additionally, a low percentage of students go to bed before 10 pm, which suggests a lack of proper sleep and rest, which could affect their academic performance.

The study found that only 15% of students are always happy, which is a cause for concern. The results also reveal that there is a correlation between mood and resitting for exams, indicating that students who resit for exams may experience negative emotions that could affect their academic performance.

The findings also highlight the high levels of stress experienced by students during exam preparation and when they get lower marks. Interestingly, there is no correlation between stress and resitting for exams, suggesting that students who resit exams may not experience additional stress as compared to those who don't. According to Crede et al, study motivation and study skills exhibit the strongest relationships with both grade point average and grades in individual classes. Academic specific anxiety was found to be an important negative predictor of performance. <sup>(18)</sup>

The study also found that a high percentage of students have a strong circle of friends and good financial support, which are positive factors that could contribute to their academic success.

#### Study limitations:

Recall bias is possible while giving options. Many other factors like college environment, teaching hours etc were not considered. Subjects may not be honest while answering. Because data was not collected personally, there was a chance of bias while answering the questions.

#### Conclusion:

Overall, the findings provide valuable insights into the study habits, lifestyle, mood, and stress levels of students in relation to their academic performance.

Many factors like recreation, social media use and online learning methods did not have significant effect on academic performance of the medical students.

The study highlights the need for students to adopt a healthy lifestyle and manage stress levels to achieve academic success. The results can be used to develop interventions and strategies that can help students to overcome the challenges they face and achieve academic success.

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**Table No. 1 showing mean age and birth order of the participants.**

Variable	Mean	Standard. Deviation
Age	22.46	0.917
Birth order	1.51	0.658

**Table No. 2 showing factors influencing the academic performance of the study participants**

Characteristics	Total n=133	Resit for exams >1 n=8	Resit for exams 0-1(n=125)	P - value
Males	39.8	87.5	36.8	0.007
Single	84.2	87.5	84	1.000
Birth Order (First Born)	57.1	25	59.2	0.285
Intrinsic motivation for studying medicine	85.7	87.5	85.6	1.000
Engage in recreation activities	65.4	87.5	64	0.262
Engage In Group studying	51.1	50	51.2	0.68
Study everyday	23.3	12.5	24	1.000
Library for studying	54.1	37.5	55.2	0.469
Use online resources for learning	92.5	87.2	92.8	0.474
Revise the subject before exams	96.2	75	97.6	0.029
Have the habit of taking down notes in the classroom	61.7	25	64	0.54
Prepare your own notes while studying	71.4	87.5	70.4	0.439
Engage in extracurricular activities	66.2	87.5	64.8	0.245
Use internet for academic/learning activities regularly	88	100	87.2	0.595
Take breakfast daily	71.4	62.5	72	0.688
Take lunch daily	85.7	87.5	85.6	1.000
Take dinner daily	84.2	75	84.8	0.612
Go to bed before 10 pm	10.5	12.5	10.4	1.000
Always happy	15	50	12.8	0.040
Feel stressful while preparing for examinations	88	75	88.8	0.247
Feel stressful when you get less marks	69.2	37.5	71.2	0.106
Always motivated to learn	72.9	87.5	72	1.000
Strong circle of friends	64.7	100	62.4	0.050
Good financial support	63.9	100	62.4	0.258

**Table No. 3 showing association of studying in library (days per week )with academic performance**

Do you go to library for studying ?(days per week )	How many times did you resit for exams ? ( supplementary )		Total
	> 1	0 - 1	
No	4	37	41
	50.0%	29.6%	30.8%
0	0	1	1
	0.0%	.8%	.8%
0 - 2	2	41	43
	25.0%	32.8%	32.3%
2 - 4	1	32	33
	12.5%	25.6%	24.8%
> 4	1	14	15
	12.5%	11.2%	11.3%
Total	8	125	133
	100.0%	100.0%	100.0%

Chi – square value = 1.587 ,df = 3 , p – value = 0.662

**Table No. 4 showing association of study hours per day with academic performance**

How many hours do you study per day????	How many times did you resit for exams ? ( supplementary )		Total
	> 1	0 - 1	
0 - 2	7 (87.50%)	95 (76)	102(76.70%)
2 - 4	1 (12.50%)	23(18.40%)	24(18.00%)
> 4	0	7(5.6%)	7(5.3%)
Total	8	125	133

Chi – square value = 0.723 ,df = 2 , p – value = 0. 697