Original Article

Exploring the Relationship Between Reading Sources and Grade Point Average Among Medical Students in King Khalid University, Saudi Arabia

Abdullah Raizah[1] and Turki Ahmed Alqahtani[2]

ABSTRACT

Objective: To determine which reading materials may have affected medical students' learning commitments as indicated by their changes in GPA.

Study Design: Cross-sectional institutional-based observational study

Place and Duration of Study: This study was conducted at the Orthopedic Department, College of Medicine, King Khalid University, Abha, Saudi Arabia from January 2025 to June 2025.

Methods: This study targeting male and female clinical-year medical students at King Khaled University, Saudi Arabia, excluding those in their preparatory year. The research utilized a structured 21-question online survey (via Google forms) to investigate the potential impact of different reading sources on students' academic performance, as measured by their GPA.

Results: The study involved 241 medical students, with a slight female majority (51%) and most participants in their fifth year (30.7%). While 50.6% relied on lectures as their primary resource, only a small percentage used AI tools like ChatGPT (2.5%) or scientific literature (2.1%). Most students (79.3%) believed additional resources were necessary for good grades, and 62.7% found medical websites helpful. High GPAs were strongly linked to reading scientific books (80%), whereas low GPAs were common among those relying solely on lectures (69.8%).

Conclusion: The evaluation highlights students' struggle to effectively integrate diverse resources into their studies, as evidenced by the minimal impact of reading medical literature on GPA.

Key Words: Reading sources, GPA, Medical students, Academic achievement

Citation of article: Raizah A, Alqahtani TA. Exploring the Relationship Between Reading Sources and Grade Point Average Among Medical Students in King Khalid University, Saudi Arabia. Med Forum 2026;37(1): 42-47. doi:10.60110/medforum.370108.

INTRODUCTION

The abundance of medical information resources has increased over the past ten years as a result of extensive medical research. As a result, medical students now face the difficulty of figuring out the most efficient method of learning outside of traditional curricula because of the growing availability of online educational resources. The concept of autonomous learning is also being embraced in medical education, where students design their own study schedules that include resource selection and feedback use in order to achieve their educational goals.

[1.] Assoc Prof / Asstt Prof[2], Orthopedic Department, College of Medicine, King Khalid University, Abha, Saudi Arabia.

Correspondence: Abdullah Raizah, Associate Professor, Orthopedic Department, College of Medicine, King Khalid University, Abha, Saudi Arabia.
Contact No: +966545503444
Email: araizah@kku.edu.sa

Received: July, 2025
Reviewed: August-September, 2025
Accepted: October, 2025

Indeed, a variety of study resources, including textbooks, booklets, and lecture notes, are available to medical students[1]. Medical students usually use additional resources as part of their study strategy in addition to the ones that their instructors supply in their academic courses. They might use, for instance, online books, scientific medical websites, scientific medical articles and journals, internet search engines like Google, artificial intelligence technologies like ChatGPT, and external resources from the internet, such as board preparation supplies. Strong reading habits, which are essential for success in the medical field, can be encouraged by easily accessible resources[2]. As previously stated, the goal of medical college curricula and examinations is to enhance students' clinical interpretation abilities and study habits. A student's attitude and approach to learning, including their study habits and resource choices, have been shown to have a major impact on their professional achievement. Medical students show doubt about the lecture material's suitability for achieving high grades and believe that more resources are needed[3]. The grade point average (GPA) is a well-known measure that is used to support a number of learning topics, ranging from national education policy

to individual student accomplishment. The necessity to create a system that was transferable and understood by institutions in order to measure student progress in an ordinal fashion served as the basis for the creation of these grading measures[4,5]. Grade point averages (GPAs) are used to inform and guide assessments in numerous fields of education, including college admissions decisions. Furthermore, there is a chance that making GPA a commodity that grants access to academic opportunities could influence students' learning strategies in an effort to compete with other students. Policymakers assume that GPA offers an objective metric that can predict academic preparation and, consequently, examination achievement. However, the study found that using GPA as a criterion can influence student-learning behavior[6]. There is no doubt that medical students in Saudi Arabia have unprecedented access to a wide range of educational resources; yet it is still not entirely known how these resources are used, how they differ within educational cohorts, or how they relate to academic achievement.

METHODS

This cross-sectional, questionnaire-based study was conducted at King Khalid University, Saudi Arabia. A total of 241 medical students (118 male and 123 female) from various clinical years were included, selected from the 660 students enrolled in the college. Students from first to sixth year participated, with representation ranging from 0.41% in first year to 30.71% in fifth year. Academic performance was evaluated using GPA, categorized as low (<4.5) and high (≥4.5), along with measures of reading frequency and academic achievement.

Data Collection: Data were collected using a structured 21-item online questionnaire developed through Google Forms. The tool covered demographics, GPA, academic performance, study habits, access to educational resources, and frequency of reading scientific literature. The questionnaire underwent face and content validation by faculty and students. Multiple-choice items utilized Likert-type responses and allowed multiple selections to optimize response rates. Confidentiality of participants was ensured.

Statistical Analysis: Data were analyzed using IBM SPSS version 25. Frequencies and percentages were generated for categorical variables. Associations between variables were examined using Chi-square or Fisher's exact tests, with $p<0.05$ considered statistically significant.

RESULTS

Over half of the students relied mainly on lectures (50.6%), while only a small proportion used scientific books or AI tools alone. Many students preferred mixed learning resources, combining lectures with medical websites, Google searches, journals, and AI. Most students rated their academic achievement from reading books as average, and reading frequency was low, with 63.4% reading non-periodically and 22.0% never reading medical books. A large majority (79.3%) believed lectures alone were insufficient for full marks. Motivation from coordinators varied, scientific websites were viewed as highly effective by 62.7% of students, and only one-third benefitted from journals. More than half (57.5%) studied three hours or more per day (Table 1).

Table 2 shows that GPA was significantly influenced by several study behaviors. The primary study source had a significant association with GPA ($p = 0.048$), with higher GPA more common among students using diverse resources rather than lectures alone. Reading frequency of medical books ($p = 0.01$), daily study duration ($p = 0.008$), and availability of books in the college library ($p = 0.035$) were also significantly linked with higher GPA.

Table No.1: Characteristic of study population.

	Answers	Count (%)
The primary source you rely on in your study	Lectures	122 (50.6%)
	Scientific books	5(2.1%)
	Artificial intelligence tools such as ChatGPT	6(2.5%)
	Lectures and scientific books	2 (0.8%)
	Lectures, scientific books, scientific medical websites, scientific medical articles and journals	6 (2.5%)
	Lectures, scientific books, scientific medical websites, scientific medical articles and journals, Internet search sites such as Google, and artificial intelligence tools such as ChatGPT	27 (11.2%)
	Lectures, scientific medical websites, and Internet search sites such as Google	18 (7.5%)
	Lectures, scientific medical websites, Internet search sites such as Google, and artificial intelligence tools such as ChatGPT	47 (19.5%)
	Scientific medical websites and Internet search sites such as Google	8 (3.3%)

How do you evaluate your academic achievement when reading medical scientific books?	1	50 (20.7%)
	2	77 (32.0%)
	3	70 (29.0%)
	4	31 (12.9%)
	5	13 (5.4%)
How much time do you spend reading scientific medical books?	Per day	11 (4.6%)
	Per week	24 (10.0%)
	Non-periodic	153 (63.4%)
	Never read it	53 (22.0%)
Do you think that what is given in the lectures is enough to get full marks in the tests?	Yes	50 (20.7%)
	No	191 (79.3%)
Do you find continuous motivation and guidance from the subject coordinators in order to benefit from the medical books?	Yes	53(22.0%)
	No	79(32.8%)
	Sometimes	109 (45.2%)
Do you find scientific medical websites more effective and of higher quality in presenting scientific material?	Yes	151 (62.7%)
	No	25 (10.40%)
	Sometimes	65 (27.0%)
Do you benefit from medical journals and published scientific articles in your academic achievement?	Yes	53 (22.0%)
	No	106 (44.0%)
	Sometimes	82 (34.0%)
How much time do you spend studying daily?	An hour or less per day	51 (21.2%)
	Two hours per day	51 (21.2%)
	3 hours or more	139 (57.5%)

Table No.2: The relationship between the source of knowledge and the GPA level

	Answers categories	Overall GPA		
		Low GPA	**High GPA**	**P-value**
The primary source you rely on in your study Lectures Scientific books	Lectures	81 (69.8%)	35 (30.2%)	0.048*
	Scientific books	1 (20.00%)	4(80.0%)	
	Artificial intelligence tools such as ChatGPT	4 (66.7%)	2 (33.3%)	
	Lectures and scientific books	1 (33.3%)	2 (66.7%)	
	Lectures, scientific books, scientific medical websites, scientific medical articles and journals	16 (55.2%)	13 (44.8%)	
	Lectures, scientific books, scientific medical websites, scientific medical articles and journals, Internet search sites such as Google, and artificial intelligence tools such as ChatGPT	10 (38.5%)	16(61.5%)	
	Lectures, scientific medical websites, and Internet search sites such as Google	11(64.7%)	6(35.3%)	
	Lectures, scientific medical websites, Internet search sites such as Google, and artificial intelligence tools such as ChatGPT	16 (69.6%)	7(30.4%)	

	Scientific medical websites and Internet search sites such as Google	4(50%)	4(50%)	
How do you evaluate your academic achievement when reading medical scientific books?	1	23(48.9%)	24(51.1%)	0.223^{NS}
	2	50(64.9%)	27(35.1%)	
	3	46(69.7%)	20(30.3%)	
	4	17(56.7%)	13(43.3%)	
	5	8(61.5%)	5(38.5%)	
How much time do you spend reading scientific medical books?	Per day	10(90.9%)	1(9.1%)	0.01*
	Per week	18(78.3%)	5(21.7%)	
	Non-Periodic	89(59.3%)	61(40.7%)	
	Never read it	27(55.1%)	22(44.9%)	
Do you think that what is given in the lectures is enough to get full marks in the tests?	Yes	31(63.3%)	18(36.7%)	0.81
	No	113(61.4%)	71(38.6%)	
Do you find continuous motivation and guidance from the subject coordinators in order to benefit from the medical books?	Yes	34(64.2%)	19(35.8%)	0.594
	No	47(65.3%)	25(34.7%)	
	Sometimes	63(58.3%)	45(41.7%)	
Do you find scientific medical websites more effective and of higher quality in presenting scientific material?	Yes	93(64.1%)	52(35.9%)	0.453
	No	15(65.2%)	8(34.8%)	
	Sometimes	36(55.4%)	29(44.6%)	
Do you benefit from medical journals and published scientific articles in your academic achievement?	Yes	31(62.0%)	19(38.0%)	0.952
	No	64(62.7%)	38(37.3%)	
	Sometimes	49(60.5%)	32(39.5%)	
How much time do you spend studying daily?	An hour or less per day	39(79.6%)	10(20.4%)	0.008**
	Two hours per day	30(58.8%)	21(41.2%)	
	3 hours or more	75(56.4%)	58(43.6%)	
The availability of scientific book in the college library	Yes	48(70.6%)	20(29.4%)	0.035*
	No	60(61.9%)	37(38.1%)	
	Some of books	2(50.0%)	2(50.0%)	
	Don't know	34(53.1%)	30(46.9%)	
Low GPA score (< 4.5) and high GPA score (≥4.5) NS: non-significant difference p>0.05; * significant difference p <0.05; ** highly significant difference				

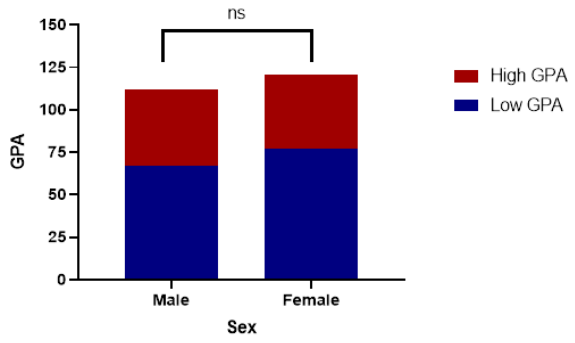

Figure No.1: Association between sex and GPA

DISCUSSION

The purpose of the current survey study was to ascertain how frequently King Khaled University medical students used different study reading sources and whether or not those sources affected their GPA and its relationship to academic performance. Over the past decade, there has been a significant increase in the educational preparation resources available to undergraduate medical students. More specifically, technological developments have made it possible for medical education to employ digital resources more frequently[7]. Our evaluation of medical students' resource use on academic performance is an attempt to better understand the overall efficacy of these

resources. Determining whether particular resources result in scholastic improvements is crucial for improving a developing medical curriculum[1]. A study carried out in the United States found that almost half of students used too many commercial review resources, while the majority did not use professional textbooks. Test scores showed a weak negative correlation with this latter fact, whereas the former was significantly linked to poor academic performance[6]. In the context of medical education, data provides insights on students' study habits, assessments of educational resources, and their academic performance. Medical students' responses to survey questions concerning primary reading resources were categorized as likely for analysis. Some contend that fewer students are attending lectures because they prefer to view lectures on record at their own time. 57.2% of first- and second-year Harvard Medical School students attend lectures, while 29.9% view them online, according to a survey of the students[8]. According to a different survey of New York University medical students, 20% of them mainly utilize online or computer-based learning, while 80% of them attend lectures[9]. The evaluation of students' performance from reading medical books is not statistically significant; the p-value of 0.223 indicates no significant association between the evaluation of academic achievement and GPA, indicating that students' ratings of their performance when reading medical books do not significantly correlate with their overall GPA, even though relying on scientific books revealed an improvement in the GPA level[10]. The findings suggest that there is no statistically significant correlation between sex and GPA across all participants in the study. We cannot conclude that sex has a significant effect on academic achievement because both male and female students tend to fall into the low GPA category. Chinese researchers discovered that female students had higher GPAs than male students, which opposes our findings. This implies that factors other than gender alone might be having a greater impact on GPA results[11]. In addition, research from other studies showed a slight positive relationship between gender and academic achievement among university of Ibadan undergraduate medical students[12]. This contrasts with a previous study that found no significant correlation between gender and students' academic achievement[13]. According to these results, a significant proportion of respondents read books on an irregular basis. It is believed that effective time management improves students' academic performance. Counsellors, psychologists, academic advisors, seminars, and workshops can help students develop better time management skills in order to increase their academic achievement[14]. A strong reliance on a medical school GPA, according to some medical educators, may lead to presumptions in the selection of students who may be more cognitively capable but lack important non-cognitive skills that are necessary for success[15]. For a long time, academic performance measured by grade point achievement (GPA) score has been used as a main factor for both selections of medical students and residency program applicants since grades long served as an objective measure that predicts better outcomes[16]. It is important to remember that medical students did not consider published scientific articles and medical journals to be easy primary sources for reading. Students' academic performance in this sample is not significantly correlated with their perception of the value of medical journals and scientific articles, according to an alternative perspective.

CONCLUSION

The present study reveals a clear link between the type of study resources used by students and their overall GPA. Students who incorporate scientific books into their study routine tend to achieve higher GPAs, while those who rely solely on lectures often experience lower academic performance. Combining diverse resources, including lectures, scientific literature, and online tools, proves beneficial for improving outcomes. Reading habits also play a significant role, but high levels of daily reading are associated with lower GPAs, suggesting that an optimal reading frequency may support success more effectively than simply increasing time spent reading.

Author's Contribution:

Concept & Design or acquisition of analysis or interpretation of data:	Abdullah Raizah, Turki Ahmed Alqahtani
Drafting or Revising Critically:	Abdullah Raizah, Turki Ahmed Alqahtani
Final Approval of version:	All the above authors
Agreement to accountable for all aspects of work:	All the above authors

Conflict of Interest: The study has no conflict of interest to declare by any author.

Source of Funding: None

Ethical Approval: ECM No.2024-6010
Dated 09.12.2024

REFERENCES

1. Bauzon, J, Alver, A, Ravikumar, V. et al. The Impact of Educational Resources and Perceived Preparedness on Medical Education Performance. Med Sci Educ 2021; 31:1319–1326.
2. Ikonne, U, Brodie, A, Bay, C. et al. Frequency of Student Resource Use and Academic Performance in Preclerkship Education: A Survey Study. Med Sci Educ 2022; 32:1465–1479.
3. Selvig D, Holaday L W, Purkiss J, Hortsch M. Correlating students' educational background,

study habits, and resource usage with learning success in medical histology. Anat Sci Educ 2015;8(1):1.
4. Brookhart SM, Guskey TR, Bowers AJ, McMillan JH, Smith JK, Smith LF, et al. A Century of Grading Research: Meaning and Value in the Most Common Educational Measure. Review Educ Res 2016;86(4):803-848.
5. Imran Ali, Raza MH, Yasmeen M, Raza MA, Munawar N. Analyzing the Impact of Student's Reading Habits on Academic Performance. J Learning Educ Policy 2023;3(06):23–33.
6. Ranabhat SK, Kunjukrishnan ML, Dubey M, et al. Exploring the usage of learning resources by medical students in the basic science stage and their effect on academic performance. BMC Med Educ 2024;24:543.
7. Egarter S, Mutschler A, Tekian A, Norcini J, Brass K. Medical assessment in the age of digitalisation. BMC Med Educ 2020;20(1):101.
8. Cardall S, Krupat E, Ulrich M. Live lecture versus video-recorded lecture: are students voting with their feet? Acad Med 2008;83 (12):1174–8.
9. Paul S, Pusic M, Gillespie C. Medical student lecture attendance versus iTunes U. Med Educ 2015;49(5):530–1.
10. Nagavolu VR, Bandaru M. Analyzing the Reading Habits of Medical Students: Insights from a Research Study. J Learning Educ Policy 2023;3(04):32–45.
11. Zhou YX, Zhao ZT, Li L, et al. Predictors of first-year GPA of medical students: a longitudinal study of 1285 matriculates in China. BMC Med Educ 2014;:87.
12. Ladipo, Sunday O. Rev. and GBOTOSHO, Sunmade Ajibola Mr, "Influence of Gender Difference on Reading Habit and Academic Achievement of Undergraduate Medical Students in University of Ibadan, Nigeria". Library Philosophy and Practice (e-journal) 2015. 1338. http://digitalcommons.unl.edu/libphilprac/1338
13. Mushtaq I, Khan NK. Factors affecting students' academic performance. Global J Manag Business Res 2012;12(9):73-83.
14. Elmahdy MA, Anwer MM. Effect of Time-Management on the Academic Performance of Medical Students, Benha University: A Cross-Sectional Study. The Egypt J Hospital Med 2023;93:7382-7392. https://ejhm.journals.ekb.eg/
15. ElAbd R, AlShatti R, Sultan S, AlOtaibi N, AlSabah S. Medical School Performance as Measured by GPA: What Can it Predict? Res Square 2024. https://doi.org/10.21203/rs.3.rs-3860391/v1
16. Wariyapperuma UM, Atapattu PM, Fernando A. Academic performance and well-being of medical students during online learning of basic sciences in a newly established medical faculty. Asian J Int Med 2024;3(1):7-23.