


Does Absenteeism Affect Academic Performance Among Undergraduate Medical Students? Evidence From “Rashid Latif Medical College (RLMC).”

This article was published in the following Dove Press journal:
Advances in Medical Education and Practice

Yousaf Latif Khan ^{1,2}
Sohail Khursheed Lodhi ^{1,2}
Shahzad Bhatti ²⁻⁴
Waqas Ali²

¹Department of Gynecology and Obstetrics, Hameed Latif Hospital, Lahore 54800, Pakistan; ²Department of Medical Education, Rashid Latif Medical College, Lahore, Pakistan; ³Department of Embryology, Lahore Institute of Fertility and Endocrinology, Hameed Latif Hospital, Lahore 54800, Pakistan; ⁴Department of Human Genetics and Molecular Biology, University of Health Sciences, Lahore 54600, Pakistan

→ Video abstract



Point your Smartphone at the code above. If you have a QR code reader the video abstract will appear. Or use:
<https://youtu.be/plEpyQHAN8>

Correspondence: Shahzad Bhatti
Department of Medical Education, Rashid Latif Medical College, Lahore, Pakistan
Tel +923214529974
Email drshahzadbhatti@yahoo.com

Background: Despite the strictness in attendance policies, absenteeism is an important current issue among medical and health sciences that affects the performance of undergraduate students worldwide. Attending lectures is the key to reaping the rewards of academic achievements in undergraduate medical students. As attendance pattern and performance go hand in hand– the physical engagement of students in the classroom and practical teaching approach have a synergistic impact on the output of lower-performing students to do their best.

Methods: A total of 404 full-time undergraduate MBBS male and female students of Rashid Latif Medical College (RLMC) of age 18 or above were included in this study. The principal outcome variable, such as class grades or performance, is the dependent variable, while absenteeism is a unique independent variable.

Results: Our results capture the positive and significant impact of attendance coefficient in all proxy variables of regression models but exhibit significant decline from OLS3 to OLS4 when proxy variables for ability, effort, and motivation were included. However, we found the effect disappears, when we incorporate panel data fixed effect estimators to minimize the time-invariant student-specific unobservable traits on performance.

Conclusion: Attendance of the student is only the mandatory variable that must be monitored and regulated by corrective actions to achieve the better academic performance of the students.

Keywords: academic performance, attendance, ability, effort, motivation, penal data

Introduction

Despite the strictness in attendance policies, absenteeism is an important current issue among medical and health sciences that affects undergraduate students worldwide.¹ Class attendance is a crucial determinant of academic outcomes in preventive health education, as lectures are still an integral part of the curriculum that engage the audience in real-time for learning and assessment. During past decades, the frequent availability of video-captured lectures and ubiquitous use of online self-learning resources markedly decline the classroom response in medical colleges.²

Students who appeared in classes more often seem to be highly successful in their studies than those who frequently absent. Also, students that appear classes regularly are more likely to evoke well the information and eager to apply the medical skills more professionally during their life than others. Contrarily, students

who missed their lectures will not have the chance to foster a positive learning environment, and often poor-grades reward them. The motives for absenteeism are similar, though the degree of each reason may differ from country to country.³

In the previous study conducted on first-year medical students, exhibits that self-efficacy made an absolute involvement to the academic achievement and that voluntary participation in learning modules mediated a positive association between motivation and learning policies.⁴ Mostly, studies on student success report that class attendance is a reliable predictor associated with better outcomes in terms of improving cumulative grade point average of the students who do best.^{5,6}

Previous studies suggest a significant correlation between class attendance and the examination score among high-performing undergraduate medical students.⁷ Therefore, for the better academic performance of the students, there is no better alternative to attending the classes of the MBBS course, while various facets of self-regulated learning at in-class sessions are an additional useful marker for those who are high performing students. Another study has also re-affirmed the concept that attending clinical and tutorial-based class events have a positive correlation with overall examination score.⁸

Dealing with class attendance is not a new phenomenon; it has been a problem for decades and has yet been extensively studied. Some students only attend classes to fulfill the mandatory requirements of the institute. However, regular attendance accomplishes several significant achievements in medical education. It stimulates the students to develop their thinking by comparing new ideas. It plays an active role in improving student performance by accelerating teamwork abilities, self-confidence, and understanding of learning of basic concepts.⁹

Absenteeism of the students has a significant concern for any institute. It reflects low levels of motivation that might have a link with extensive socialization among students, part-time jobs, poor physical or mental condition, and excessive sleepiness.¹⁰ Also, student and faculty attitudes about learning, class & examination schedule, quality of teaching materials, assessment methods, educational environment of the class, lifestyle-related pressures, and extra-curricular activities leads to a loss in productivity.¹¹

When students are absent from lectures, they miss valuable information and do not clarify their concepts resulting in inadequate learning and compromised

academic performance. Various researches on class attendance and performance show that students with high attendance achieve have higher academic performance than those students who had poor class attendance.^{12,13} Class attendance has an encouraging impact on students' academic achievements, and therefore, a mandatory attendance policy plays a significant role in accelerating academic success in undergraduate medical students.¹²

Medical students' absenteeism at class lectures is a prime concern in Rashid Latif Medical College. Therefore, this study set out to explore the association between absenteeism and academic performance among undergraduate medical students. Literature-based evidence suggests that medical students who passed exams would have lower absenteeism scores than those who got supplies.

Materials And Methods

Study Design And Setting

A cross-sectional study was undertaken to find the association between absenteeism and academic performance. Primary distinctive data used in this study was collected on class attendance among undergraduate MBBS students at "Rashid Latif Medical College (RLMC)" in the 2012–2014 academic years.

Participants, Data Collection, And Instruments

A total of 404 full-time undergraduate MBBS male and female students of RLMC of age 18 or above were included in this study. We collected data according to the latest figures through combined administrative student records and by conducting a survey using a follow-up questionnaire among undergraduate medical students.

Consent of participation was obtained from students enrolled in the MBBS class before research and to publish the study results. Typically, Basic medical courses for MBBS students were delivered in four 1 hr lectures per week over 30 weeks in the first professional part and second professional part of MBBS, respectively. The 1st term was held in week 15 of the courses, while 2nd term was held in the fourteenth week of the sessions, and the final professional assessment was held after eight weeks of the 2nd term in each year. Before the study, the instructors of the particular subjects communicate effectively with students regarding the objective of the study. They also ensure that their gross attendance rate would not affect overall their final assessment marks. The effect of

measurement error on attendance rates was minimized by monitoring the attendance at the start and end of each lecture section.

For empirical analysis, we dropped those observations which have missing values on subject interest, teaching evaluation, and weekly study hours variables, during the estimation process through statistical analysis. Finally, we have a balanced pooled panel of those observations that have valid information on term attendance and grades. These variables were further re-validated through administrative records information.

Variables For The Measurement Of Class Absenteeism

The principal outcome variable, such as class grades or performance, is the dependent variable, while absenteeism is a unique independent variable.

Data Analysis Empirical Strategy

This study aims to explore whether lecture attendance has an impact on academic performance among undergraduate medical students. A basic learning model based on EPF (education production function) approach is given as

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + u_i \quad i = 1, 2, 3, \dots, n \quad (I)$$

where

y_i = learning outcome of every student i , measured by marks or grades

x_{i1} = academic input measured by lecture attendance

x_{i2} = Student inputs (ability, effort, motivation)

u_i = Error

An empirical strategy to find the effect of different attendance methodology was used. Following model was used to calculate the proxy variables for unobservable student inputs:

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2}^* + u_i \quad (II)$$

X_{i2}^* = unobserved variable and presume that a X_{i2} is presented for X_{i2}^* where:

$$X_{i2}^* = \delta_0 + \delta_2 x_{i2} + \eta_i \quad (III)$$

In the above strategy, unobserved variables included ability, effort, and motivation which are proxied by

Ability = Higher secondary school marks, Grade Point Average of MCAT

Effort = self-study hours

Motivation = Subject Interest, Teaching Evaluation

By considering these proxy-regression variables in our analysis, we try to undo-the-impact as well as the inconsistency of attendance and academic scoring within observational units over time. For that reason, in our study, the ability was measured before the course starts, while effort and motivation were calculated at the end of the course. Subsequently, these characteristics are potentially associated with the student propensity to attend class lectures, omitting them from the model would lead to a problem of excluded variable biased. In order to increase the endogeneity of attendance, the use of the panel data makes it purposeful under a certain assumption, to carry off the measurable impact of unobservable variables that vary across units but remain unchanged over time.

$$y_{it} = \beta_0 + \beta_1 x_{it1} + \beta_2 x_{it2} + c_i + u_{it} \quad t = 1, 2, \dots, T \quad (IV)$$

y_{it} = represented academic performance (time-varying dependent-variable)

x_{it1} = Lecture attendance (time-varying explanatory variable)

x_{it2} = Time variant regressor

c_i = correlation between regressor and time-constant unobserved heterogeneity

u_{it} = idiosyncratic error component

The fixed effect estimator work under the supposition that c_i characterize time-invariant effects, associated with regressors that can be omitted by deducting the corresponding model for individual means:

$$(y_{it} - \bar{y}_i) = \beta_1 (x_{it1} - \bar{x}_{i1}) + (u_{it} - \bar{u}_i) \quad (V)$$

If the independent variables are remained exogenous, the fixed effect estimator (FE) is consistently coherent and unbiased. However, major drawbacks are the loss of effectiveness and lack of all-time-constant regressors, including observed and unobserved. In order to resolve this issue, we analyze the RE (random effects) model by considering that c_i does not correlate with the regressors.¹⁴ While the RE estimator can be obtained as given in the equation.

$$y_{it} - \lambda \bar{y}_i = \beta_0 (1 - \lambda) + \beta_1 (x_{it1} - \lambda \bar{x}_{i1}) + \beta_2 (x_{it2} - \lambda \bar{x}_{i2}) + (\varepsilon_{it} - \lambda \bar{\varepsilon}_i) \quad (VI)$$

Where

$$\lambda = 1 - \left(\frac{\sigma_{\mu^2}}{\sigma_{\mu^2} + T\sigma_{\varepsilon^2}} \right)^{1/2} \quad \text{and} \quad \varepsilon_{it} = c_i + u_{it}$$

Next, we estimate the FE and RE model on our panel data samples, and Hausman-test was used to test the orthogonality between regressors and unobserved time-invariant effects.¹⁵

Statistical Analysis

Descriptive statistics are stated as means \pm SD. Student's *t*-test was applied for quantitative variables, and we calculated the mean score difference (95% CI, upper and lower limit) between independent variables among final professional assessment-1, and 2 (Summative assessment) conducting at the end of the year by University of Health Science. While Chi-square was applied for qualitative variables. Pearson's product-moment test was employed to assess the correlation between marks obtained in consecutively three professional assessment exams and absenteeism.

After testing the linearity, we performed a regression analysis to calculate the OLS (ordinary least squares) estimates and robust standard error with p -value < 0.05 . Students' actual grades range from 40–100, with 50 as the passing grade, but for better interpretation, we used a 0–100% point scale that eases the incomparability of our results with those reported in the literature. The effort was measured through self-study hours, which is an average time during 30 weeks course - 45 hrs/week. While a 0–100% point scale calculated motivation based on subject interest, teaching evaluation, and subject difficulty. Statistical analysis was done with statistical package SPSS (version 25; SPSS Inc., Chicago, IL, USA). P -value < 0.05 was considered as statistically significant.

Research Ethics

The study was approved by the Institutional Ethical Review Committee (IERC) of Rashid Latif Medical College. Data was collected through the permission of respondents, and the purpose of this study was not kept hidden from respondents. Further, it was ensured that the data would not be misused.

Results

A total of 404 full time undergraduate medical students of RLMC were consented to participate in this study. The main reason for the unavailability of participants during the survey was community-based social activities outside the college. The detailed demographic characteristics of the study participants are given in Table 1. According to descriptive statistics, the average age of the student was 23.34 ± 1.28 years. Of the students who actively contributed to the study, 56.4% (228) were female, and 43.6% (176) were male. 32.7% (132) students were campus area resident, and 67.3% (272) were living off-campus. As for socio-economic status is concerned, 38.9% (157) belong to

the middle class, and 61.1% (247) from upper-class families. Following parent's education, 44.8% (181) was graduated from college, 11.1% (45) were under graduated, and 44.1% (178) were illiterate. The medical college admission test (MCAT) scoring and high secondary school marks were 80.3 ± 6.3 , and 79.3 ± 7.32 , respectively.

The overall rescale grades in the full sample of Professional assessment-1 are 77.4 ± 8.2 , with a significant increase from 81.36 ± 12.3 in the term-2 to 85.3 ± 7.02 in the final term of Professional assessment-2, while overall lecture attendance of Professional assessment-1 is lower than the Professional assessment-2.

As given in Table 2, the students who have the highest absenteeism score showed compromised academic performance in both professional assessments. It suggested that students who failed also have significantly higher ($p < 0.001$) absenteeism scores than those who passed the examination. Moreover, a positive Pearson's product-moment correlation was found among both Professional assessment scores and class attendance, as shown in Figures 1 and 2.

A significant positive impact of attendance on academic performance has been observed in all OLS proxy regression models, as shown in Table 3. In the simplest model OLS-1, column 1 proxy regression (univariate analysis) indicates that without the addition of a set of specifications, the estimated attendance coefficient is predicted to raise grades by 0.172 percentage points. While the addition of a specific set of controls for individual characteristics, we found a little rise in the level of attendance of coefficient to 0.180 (OLS-2, column 2). Additionally, by controlling the unobservable factors such as ability, effort, and motivation, we observed their effects on the estimated attendance coefficient. By adding ability proxies in the OLS-3 model (column 3) significantly decreases the expected impact of attendance to 0.121 along with substantial improvement in adjusted R² that increases from 0.284 to 0.361. However, this change further reflects the capability to enlighten the difference in the values of dependent variables.

Among the ability attributes MCAT grade point average and Higher Secondary School Grades remain significant at standard levels. Every additional percentage point of MCAT grade enhances performance by about 2%. OLS-4, column 4 describes complete specification by adding attributes of efforts and motivation to the preceding specification (OLS-3, column 3). In this model, the attendance coefficient further decreases to 0.113, whereas R² increases to 0.472. However, other proxies likewise effort

Table 1 Descriptive Statistics With Pooled Midterm Samples

Variables	Mean \pm SD	Minimum	Maximum	Observations (N)
Grade (0–100% Scale) [%]				
Professional assessment-1 grade	77.4 \pm 8.2	43.9	100	404
Professional assessment-2 grade	85.3 \pm 7.02	42.6	100	232
Term-1 grades	73.15 \pm 16.4	29.1	100	404
Term-2 grades	81.36 \pm 12.3	40.13	100	232
Attendance (0–100% Scale) [%]				
Professional assessment-1 attendance	75.64 \pm 5.69	0	100	404
Professional assessment-2 attendance	82.69 \pm 6.31	0	100	232
Term-1 attendance	75.63 \pm 23.1	0	100	404
Term-2 attendance	82.12 \pm 24.9	0	100	232
Control Factors				
Age (years)	23.34 \pm 1.28	20	27	404
Gender (%)				
Male	43.6	–	1	404
Female	56.4	–	1	
Campus area resident (%)				
In-campus	32.7	–	–	–
Off-campus	67.3	–	–	–
School type [n (%)]				
Private	353(87.4)	–	–	404
Government	51(12.6)	–	–	
Social status (income Rs.) [n (%)]				
Middle class (<250,000)	157(38.9)	–	–	404
Upper class (> 250,000)	247(61.1)	–	–	
Admin. Academic record (%)				
MCAT grade point average	80.3 \pm 6.3	60	95	404
Higher secondary school grade	79.3 \pm 7.32	70	94	404
Survey variables				
Weekly study hours	10.96 \pm 2.15	6	18	404
Subject interest (0–100% Scale)	78.23 \pm 10.66	50	100	404
Teaching evaluation (0–100% Scale)	81.58 \pm 10.41	40	90	404
Subject difficulty (0–100% Scale)	76.1 \pm 11.3	43	81	404
Parents Education [n (%)]				
Graduated	181(44.8)	–	–	404
Under-Graduate	45(11.1)	–	–	
Illiterate	178(44.1)	–	–	

Notes: Professional assessment-1: Summative assessment at the end of the 1st year of MBBS.
Professional assessment-2: Summative assessment at the end of the 2nd year of MBBS.

and motivation, only teaching evaluation exhibits statistically significant association (OLS-4, column 4). Given that a 10-percentage point rise in teaching evaluation is on average associated with 3.1 percentage point enhancement in academic achievements.

The outcomes of the RE and FE model are presented in Table 4. The RE estimators exhibit a positive effect of

attendance that gradually increases from RE2 to RE4. While considering RE4 (in column 3), which exhibits complete specification, the impact of attendance is slightly but significantly increases to 0.331 at the 5% level. Similarly, the FE estimator showed that class attendance further declines to 0.039 in 1st and 0.044 in 2nd professional assessment, i.e., economically insignificant. This

Table 2 Association Between Academic Performance And Absenteeism Score

Variable	Absenteeism Score, Mean	Mean Difference (CI 95%; Lower Limit- Upper Limit)	t-statistics (df)	p-value
1 st Professional assessment Passed (n=265) Failed (n=139)	0.06 6.40	8.97 (8.95; 15.00)	6.80 (404)	< 0.001
2 nd Professional assessment Passed (n=250) Failed (n=48)	0.08 4.55	6.12 (3.65; 6.96)	9.31 (298)	< 0.001

Notes: Professional assessment-1: Summative assessment at the end of the 1st year of MBBS. Professional assessment-2: Summative assessment at the end of the 2nd year of MBBS. The Independent-t test was applied to compare mean difference between two independent variables (passed and failed) of 1st, and 2nd Professional assessment exams. The level of significance was considered 0.05.

confirms our strength of the study that by controlling for ability, effort, and motivation, and other individual characteristics, still, we have a persistent positive association among unobserved effects and time-varying regressors.

Thus, the Hausman test strongly condemned the traditional approach of the null hypothesis of orthogonality among unobserved traits and regressors, which prove the FE attendance coefficient as a reliable tool.

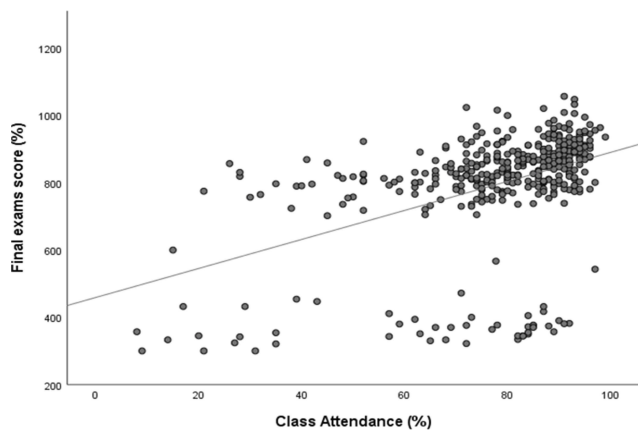


Figure 1 Scatter plot presents the positive linear correlation between the score of first Professional assessment and class attendance ($R^2 = 0.397$, $p < 0.05$).

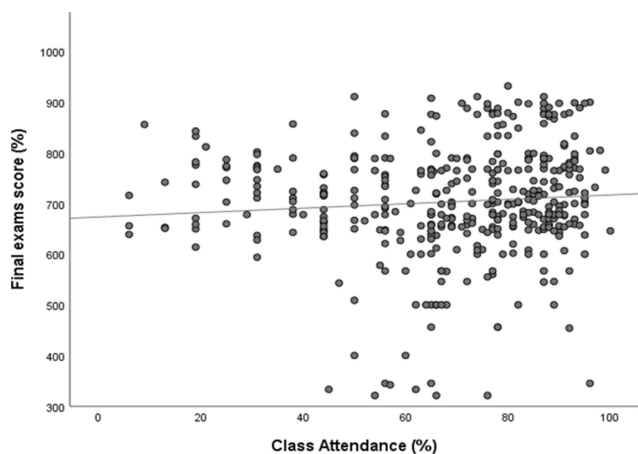


Figure 2 Scatter plot presents the positive linear correlation between the score of 2nd Professional assessment and class attendance ($R^2 = 0.198$, $p < 0.05$).

Discussion

Absenteeism and low performance among medical students have been studied extensively; the purpose of this study was to examine the relationship between student examination performance and attendance. Student socio-economics was not identified with the consistency of their attendance. As expressed earlier, chronic absenteeism may bring down academic performance and stop the improvement of professionalism. Thus, it should be controlled to achieve the quality of education and academic goals. A recent study showed that the incidence of absenteeism and other related factors were consistent with a poor attitude of learning that eventually affects academic progress that is under our research findings on underachievers.¹⁶ Intrinsically, good attendance has a direct link with academic progress and scholastic achievement that has been attained by motivating students through incentives or rewards. Recent studies on undergraduate students demonstrated different factors that have a strong influence on attendance rate, including academic and non-academic work overload pressure, psychological distress, and anxiety during examination situations. These multifactorial educational stress factors compromised the performance and professional work of the students and proved to be a substantial barrier in the accomplishment of their academic goals.¹⁷ However, attending lectures regularly and consistently can be an effective and satisfying stress reducer among such students.

Our data showed a significant attendance pattern with professional assessment-1. Substantially, the lower average

Table 3 Overall Grade Determinants. Ordinary Least Squares (OLS) Estimates

Variables	OLS1	OLS2	OLS3	OLS4
Attendance of 1st Professional assessment (%)	0.172** (0.157)	0.180** (0.043)	0.121** (0.031)	0.113** (0.034)
Attendance of 2nd Professional assessment (%)	0.193** (0.35)	0.195** (0.062)	0.188** (0.017)	0.127** (0.072)
Age		1.005 (0.84)	0.501 (0.871)	-0.531 (0.81)
Gender		0.39 (2.49)	0.46 (8.36)	0.66 (8.18)
Campus Area Resident		3.98 (2.99)	3.08 (2.73)	5.60* (2.54)
School Type		2.5 (2.18)	5.5 (2.27)	6.2 (1.78)
Social Status		0.01 (2.56)	0.03 (2.49)	0.13 (3.04)
MCAT grade point average			0.93* (0.28)	0.99* (0.30)
Higher Secondary School grade			0.32* (0.18)	0.216 (0.67)
Weekly Study Hours				0.07 (0.16)
Subject Interest				0.09 (0.14)
Teaching Evaluation				0.31* (0.16)
Adjusted R ²	0.542	0.284	0.361	0.472
Total no. of Observations	404	404	404	404

Notes: Calculations on RLMC pooled samples. Values in parentheses represented clustered robust standard errors. *Significance at 10% level; **Significance at 5% level; OLS 1= Attendance; OLS 2= Age, Gender, Campus Area Resident, School Type, Social Status, Parents Education (Individual characteristics); OLS 3= Grade Point Average of MCAT Marks, High secondary school marks (Ability); OLS 4= Weekly Study Hour, Subject Interest, Teaching Evaluation (Effort and motivation).

Abbreviation: OLS, ordinary least squares.

Table 4 Effects Of Attendance On Final Grades Of RLMC. Panel Data Estimates

Variable	RE2	RE3	RE4	FE
Attendance (%) of 1st Professional assessment	0.099* (0.031)	0.081* (0.021)	0.073* (0.042)	0.039 (0.092)
Total no. of Observations	404	404	404	404
Attendance (%) of 2nd Professional assessment	0.097* (0.031)	0.081* (0.022)	0.080* (0.044)	0.044 (0.071)
Total no. of Observations	298	298	298	298

Notes: Calculations on RLMC pooled samples. Values in parentheses represented clustered robust standard errors. *Significance at 5% level.

Abbreviations: RE, Random Effect; FE, Fixed Effect; RE2, Individual characteristics; RE3, Ability; RE4, Effort and motivation.

attendance in the professional assessment-1 could be a reflection of the lack in the early part of the first-year lectures by students who have late admissions due to the Central Induction Program (CIP) under the University of Health Sciences or required little time for the adaptability in the new environment. While improved overall average attendance later in professional assessment-II might be the result of adjustment and adaptation to their learning environment, prompting undergraduates to be more regular in their classes.

Our study reveals that absenteeism from classes is a developing pattern that has a substantial relationship with academic performance. In agreement with our research, another investigation revealed that positive self-adequacy implies one of an absolute influence on undergraduate medical student performance; they recommended a model by utilizing basic equation modeling in which medical learners have a secure connection between inspiration and medical learning system.¹⁸ However, researchers in Dublin working on fourth-year medical students revealed the same results

by confirming that attendance was positively correlated with learning outcomes on a summative assessment that involved an MCQs and SEQs exam, respectively.^{19,20}

López et al 2010 demonstrated that in-campus residents have comparable academic achievements than off-campus residents who were in contrast with our finding where insignificant association exists between both. The reason for this difference is not explained in this study.^{18,21} However, rural-urban background and medium of instruction is the most probable cause of this difference. Among ability proxies such as higher secondary school grades, and grade point average of MCAT marks remains significant at a standard level among students achieving higher grades in the professional assessment exams, proposing that there is a positive association between attendance and performance regarding abilities. Our study shows that students who got admission in medical college tend to be at the highest possible range of scores in their higher secondary school grades. Thus, higher secondary school grades contribute much to achieve higher

grades in the professional assessment exams, which is confirmed by other studies.

Our findings regarding performance concerning ability are consistent with Romer and his colleagues suggesting a positive association between absenteeism and performance relating ability.²² In Figures 1 and 2, even though we obtained a significant R^2 , the percentage of the response that is explained is 40% in 1st Professional assessment and 20% in 2nd Professional assessment. The first R^2 has a moderate correlation, and the second almost approaches to an inconsequential relationship. There are several reasons, one of that is research that involves variable like behavior, low values could show a Significant trend. Obtaining low scores is interesting because it shows that other potential variables of lecture attendance might influence on student academic performance.²³

Students' interest is often considering a phenomenon that contributes to academic achievements. A low level of interest might be a leading cause of lack of motivation to learn that have an indirect effect on academic scoring as predicted from our study. Other authors provide empirical support for this mechanism by highlight the impact of subject interest on academic performance.^{24,25}

According to our results, lecture attendance has a positive impact on learning outcomes that were further strengthened by different recent studies. Attendance/performance of students must be good if the mentor engaged students during lectures, and this was only possible when an instructor has good command on his subject and encourages the students by their positive behaviors to attend the class regularly. Other attributes likewise for effort and motivation, only we have a significant association with teaching evaluation at a 5% significant level; a 5-percentage point increase in teaching evaluation is, on average increased 3.05% academic performance. Although assessing teacher performance ability is a decades-old concept, but still holds the educators to account for the assessment of students' performance and learning outcomes. Likewise, a teacher's evaluation has a positive impact on student growth, skills, and professional activities. It also serves to promote the knowledge and teaching skills of the mentors and continually motivating great teaches to remain in the classroom.²⁶

One of the best vantage points of our research was the data collection in each session, and thus, the FE estimator measured in an error-free environment. Secondly, the availability of panel data (where the same cross-sectional units are measured more than once), which makes it possible to

eliminate the effect of unobservable factors that vary across observational units but are constant over time.

This study holds several limitations such as small participant numbers, various reasons for absenteeism, students' subject interest, and only participation from private medical college students along with other uncontrolled factors that might be contributed as confounders to affect the correctness and reliability of results. Mainly, a two-period FE estimation might not be neglected that describes changes in the time-variant element associated with changes in attendance over time, i.e., low grades may be responsible for increased or decreased presence in the upcoming exams. In addition to that, we are also unable to address any existed relationship between academic assessment and psychological distress due to examination, along with its impact on learning and performance among medical students. As this is likely to be a pilot study, we are unable to concentrate all the concerned variables, including the IQ level of the students, various learning methods, quality of teaching materials, assessment methods, educational environment of the class, lifestyle-related pressures, extra-curricular activities and the popularity of the specific mentors for each course.

Future Perspective

To increase the robustness of our findings, in the future, we plan to proceed further research on that aspect by including different institutions (Government and private sectors), which will provide more comprehensive additional strength on that topic. This will enable us to highlight the other potentially endogenous variables of lecture attendance on academic performance of students. Furthermore, to reduce the incidence of absenteeism among students, medical colleges should introduce such practices based on incentive or reward giving schemes that will further improve student's attendance. In addition to that, a mentor can improve a student's presence by adding e-learning modules and adopting advanced teaching methodologies during their lectures.

Conclusion

In summary, our findings revealed that medical undergraduate students' better performance in professional assessment exams has a negative correlation with absenteeism and positively associated with high attendance percentage. Attendance of the student is only the mandatory variable that must be monitored and regulated by corrective actions to achieve the better academic performance of the

students. Moreover, the reorientation of medical education is compulsory, along with a new strategy for policy settings to attract the students.

Ethics Approval And Consent To Participate

The study was approved by the Institutional Ethical Committee (IEC) of Rashid Latif Medical College (RLMC). Informed consent was obtained from all subjects before the research and publishing of the results of the study.

Data Sharing Statement

The data set used and analyzed during the current study is available from the corresponding author on reasonable request.

Acknowledgments

We acknowledge the research initiative of the Rashid Latif Medical College (RLMC) and gratefully thank Professor, Dr. Rashid Latif Khan, Professor of Emeritus in Obstetrics and Gynecology, in manuscript editing. Also, the authors would like to show gratitude to Rameen Nisar and Saba Sardar for their valuable comments.

Funding

Rashid Latif Medical College (RLMC).

Disclosure

The authors report no conflicts of interest in this work.

References

- Wadesango N, Machingambi S. Causes and structural effects of student absenteeism: a case study of three South African Universities. *J Social Sci.* 2011;26:89–97. doi:10.1080/09718923.2011.11892885
- Dommeyer CJ. Lecture capturing: its effects on students' absenteeism, performance, and impressions in a traditional marketing research course. *J Educ Bus.* 2017;92:388–395. doi:10.1080/08832323.2017.1398129
- Sharmin T, Azim E, Choudhury S, et al. Reasons of absenteeism among undergraduate medical students: a review. *Answer Khan Mod Med Coll J.* 2017;8:60–66. doi:10.3329/akmmcj.v8i1.31660
- Yusoff MSB. Association of academic performance and absenteeism among medical students. *Educ Med J.* 2014;6. doi:10.5959/eimj.v6i1.248
- Qutub MF, Bafail MA, Alomari AS, et al. Absenteeism among Saudi Medical Students. *Egypt J Hosp Medi.* 2018;70. doi:10.12816/0044631
- Rao B, Valleswary K, Nayak M, et al. Reasons for absenteeism among the undergraduate medical students attending for theory classes in Rajiv Gandhi Institute of Medical Sciences (RIMS) Ongole, Prakasam District of Andhra Pradesh: a self review. *IOSR J Res Method Educ.* 2016;6:11–19.
- Kauffman CA, Derazin M, Asmar A, et al. Relationship between classroom attendance and examination performance in a second-year medical pathophysiology class. *Adv Physiol Educ.* 2018;42:593–598. doi:10.1152/advan.00123.2018
- Roberts C, Jorm C, Gentilcore S, Crossley J. Assessment Peer assessment of professional behaviors in problem-based learning groups. *Med Educ.* 2017;51: 390–400.
- Al Shawwa L, Abulaban AA, Abulaban AA, et al. Factors potentially influencing academic performance among medical students. *Adv Med Educ Pract.* 2015;6:65.
- Epstein RM, Cox M, Irby DM. Assessment in medical education. *N Engl J Med.* 2007;356:387–396. doi:10.1056/NEJMra054784
- Gul R, Khan HM, Alam SR, et al. Absenteeism among medical undergraduate. *J Med Sci.* 2016;24:16–18.
- Lukkarinen A, Koivukangas P, Seppälä T. Relationship between class attendance and student performance. *Procedia Soc Behav Sci.* 2016;228:341–347. doi:10.1016/j.sbspro.2016.07.051
- Bamuhair SS, Al Farhan AI, Althubaiti A, et al. Class attendance and cardiology examination performance: a study in the problem-based medical curriculum. *Int J Gen Med.* 2016;9:1.
- Bell A, Jones K. Explaining fixed effects: random-effects modeling of time-series cross-sectional and panel data. *Political Sci Res Methods.* 2015;3:133–153. doi:10.1017/psrm.2014.7
- Bartolucci F, Belotti F, Peracchi F. Testing for time-invariant unobserved heterogeneity in generalized linear models for panel data. *J Econom.* 2015;184:111–123. doi:10.1016/j.jeconom.2014.09.002
- Eisen DB, Schupp CW, Isseroff RR, et al. Does class attendance matter? Results from a second-year medical school dermatology cohort study. *Int J Dermatol.* 2015;54:807–816. doi:10.1111/ijd.2015.54.issue-7
- Desalegn AA, Berhan A, Berhan Y. Absenteeism among medical and health science undergraduate students at Hawassa University, Ethiopia. *BMC Med Educ.* 2014;14:81. doi:10.1186/1472-6920-14-81
- Khalil MK, Nelson LD, Kibble JD. The use of self-learning modules to facilitate the learning of basic science concepts in an integrated medical curriculum. *Anat Sci Educ.* 2010;3:219–226. doi:10.1002/ase.177
- Ramirez BU. Correlation of self-assessment with attendance in an evidence-based medicine course. *Adv Physiol Educ.* 2015;39:378–382. doi:10.1152/advan.00072.2015
- Deane RP, Murphy DJ. Student attendance and academic performance in undergraduate obstetrics/gynecology clinical rotations. *Jama.* 2013;310:2282–2288. doi:10.1001/jama.2013.282228
- López Turley RN, Wodtke G. College residence and academic performance: who benefits from living on campus? *Urban Educ.* 2010;45:506–532. doi:10.1177/0042085910372351
- Romer D. Do students go to class? Should they? *J Econ Perspect.* 1993;7:167–174. doi:10.1257/jep.7.3.167
- Mills C, Heyworth J, Rosenwax L, et al. Factors associated with the academic success of first-year health science students. *Adv Health Sci Educ.* 2009;14:205–217. doi:10.1007/s10459-008-9103-9
- Viljaranta J, Aunola K, Hirvonen R. Motivation and academic performance among first-graders: a person-oriented approach. *Learn Individ Differ.* 2016;49:366–372. doi:10.1016/j.lindif.2016.06.002
- Renninger KA, Hidi S. *The Power of Interest for Motivation and Engagement.* Routledge; 2015.
- Baykan Z, Naçar M. Learning styles of first-year medical students attending Erciyes University in Kayseri, Turkey. *Adv Physiol Educ.* 2007;31:158–160. doi:10.1152/advan.00043.2006

Advances in Medical Education and Practice

Dovepress

Publish your work in this journal

Advances in Medical Education and Practice is an international, peer-reviewed, open access journal that aims to present and publish research on Medical Education covering medical, dental, nursing and allied health care professional education. The journal covers undergraduate education, postgraduate training and continuing medical education

including emerging trends and innovative models linking education, research, and health care services. The manuscript management system is completely online and includes a very quick and fair peer-review system. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <http://www.dovepress.com/advances-in-medical-education-and-practice-journal>