

ORIGINAL ARTICLE

Attendance and Academic Performance of MBBS Students in Community Medicine – A Retrospective Cohort Study

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ABSTRACT

Introduction: Student attendance is considered as an important factor contributing to academic performance in Medical education. This becomes all the more relevant in the context of Competency based medical education where clinical contact and skills are necessary to develop competence. Student's absenteeism is a continuous problem in medical education despite mandatory attendance policies introduced by the universities.

Aim and Objective: To study the effect of class attendance on performance in theory and practical examination in community medicine.

Material and Methods: A Retrospective Cohort study was conducted in the Dept of Community Medicine of Indira Gandhi Government Medical College and Hospital, Nagpur. 153 students of 2015 Batch of Third MBBS Part I who appeared in all the three internal assessments of both theory and practical as well as University examinations were included for the study. Theory and practical marks of the internal assessments conducted for the batch of 2015 Third MBBS Part I were retrieved. Data of the attendance percentage of both theory and practical of the same students were also retrieved. Three groups were created based on attendance percentage of both theory and practical. Group I with less than 50% attendance, group II between 50% and 75% attendance and group III with more than 75%. Mean marks of the students of the three groups were compared with their attendance percentage.

Results: It was observed that there was a significant positive correlation between attendance percentage and Internal assessment marks in both theory and practical but no correlation was found between University marks and attendance.

Conclusion: The findings of this study support evidence that though there is a significant positive correlation between class attendance and academic achievement, attendance is not only factor responsible for academic performance.

Keywords: Internal assessments marks, University examination marks, percentage of Attendance, MBBS students

INTRODUCTION

Graduate medical curriculum is oriented towards training students to undertake the responsibilities of a physician of first contact who is capable of looking after the preventive, promotive, curative and rehabilitative aspect of medicine.¹ MBBS Curriculum is vast and emphasis has been laid down by the Universities and regulatory bodies on attendance policies. Though most of the universities have kept 75% as the cut off forelegibility to appear in the university exams, student absenteeism is an alarming situation.² Absenteeism is a situation in which people are not at school or work when they should be. In spite

of the explicit rules regarding the mandatory attendance during lectures & practical sessions, absenteeism is a growing concern.³ Attendance during their undergraduate curriculum plays very crucial role to extrapolate their knowledge in the later professional life. The absence in class affects their assessment which is found to be directly related. Several researches on class attendance established that on average, student with high attendance achieves higher academic performance in both coursework and examination than student with poor attendance.⁴ Attending classes helps the students to obtain information that is not contained in the textbooks. It also allows the student to contact with materials like

lectures, review of notes and demonstrations.⁸ However, the studies showing relationship between separate theory and practical attendance and their comparison with assessment are limited. Hence, this study is done to know whether in our setting class attendance had any correlation with academic performance.

METHODS

A retrospective cohort study was conducted to assess the effect of class attendance on academic performance in theory and practical examination of third MBBS part I students who have passed examination in the Department of Community Medicine, Indira Gandhi Government Medical College, Nagpur, affiliated to Maharashtra University of Health Sciences (MUHS), Nasik. Students have to appear for three internal assessment examinations under the department of community medicine. First internal assessment examination is conducted in the fourth semester, while second internal assessment and preliminary examinations are conducted at the end of sixth and seventh semester respectively. All the 153 students of Third MBBS Part I of 2015 batch who had appeared in all the three internal assessments and University examinations were taken. The study was approved by Institutional Ethics Committee. The data of attendance and marks in theory and practical at the time of each internal assessment (a total of three) were obtained from the department records and University theory and practical examination marks were obtained from MUHS result records and compared to know whether there is any association. Three groups were recreated based on attendance percentage, Group I with less than 50%, Group II between 50% and 75% and Group III with more than 75%. Data entered in Microsoft Excel as attendance percentage and marks obtained by the students. Results were tabulated, The quantitative data was analyzed using Independent sample *t*-test, and Pearson correlation

analysis and qualitative data were analysed as proportions and Chi-square test. Results were tabulated, and significance was expressed according to the $P < 0.05$ (significant) and < 0.001 (highly significant).

RESULTS

A total of 153 students were included in the present study. 136 students have attendance less than 50% in theory and were taken in Group I another 17 students were entered in Group II, having attendance between 50% and 75%. No student was having attendance more than 75% in theory. 112 students were having attendance less than 50% in practical and were taken in Group I another 37 students were entered in Group II, having attendance between 50% and 75%. 4 students were having attendance more than 75% in practical, these 4 students have secured $\geq 50\%$ marks in practical, so they were clubbed into Group II for analysis purpose. Considering the very less attendance of the students, the department of community medicine had conducted 60 extra classes so as to make the students eligible for university examination.

58.8 % of the students in Group II having attendance between 50 -75% scored equal to or more than 50% marks, but only 16.9% of the students with poor attendance could score equal to or more than 50% marks (Table 2). Statistically highly significant difference was found between marks in Internal Assessment and attendance in theory. Students having higher attendance in theory are more likely to score higher marks in Theory internal assessment. 82.4% students in group II scored equal to or more than 50% marks in University theory examination while only 68.3% students scored equal to or more than 50% marks in group I, but the difference was not statistically significant.

Table 1. Distribution of marks and attendance in Theory

Groups	No of students	Marks in Theory					
		Internal Assessments		x^2 test, p value	University		x^2 test, p value
		< 50%	$\geq 50\%$		< 50%	$\geq 50\%$	
Group I	136	113 (83.0)	23 (16.9)	15.6912	48(35.2)	88 (68.3)	2.1176
Group II	17	7 (41.1)	10 (58.8)	0.000075	3(17.6)	14 (82.4)	0.14561
Total	153	120 (78.5)	33 (21.5)		51(33.3)	102 (66.7)	

Table 2. Distribution of marks and attendance in Practical

Groups	No of students	Practical Marks					
		Internal Assessment		x^2 test, p value	University		x^2 test, p value
		<50%	$\geq 50\%$		<50%	$\geq 50\%$	
Group I	112	83 (74.1)	29 (25.9)	5.8289	29 (25.8)	83 (74.1)	0.6664
Group II	41	22 (53.6)	19 (46.4)	0.015765	8(19.5)	33 (80.5)	0.414293
Total	153	105 (68.6)	48 (31.4)		37 (24.1)	116 (75.2)	

Karl Perason's Correlation Coefficient between Attendance and Marks**Table 3(a): Comparison of attendance percentage with marks in theory**

Groups	Co-relation Coefficient : Attendance Vs Internal Assessment Marks	p value	Co-relation Coefficient : Attendance Vs University Marks	p value
Group I	0.2598	<0.05	0.0904	>0.05
Group II	0.6526	<0.05	0.2065	>0.05

Table 3(b)-Comparison of Attendance percentage with marks in Practical

Group	Co-relation Coefficient : Attendance Vs Internal Assessment Marks	p value	Co-relation Coefficient : Attendance Vs University Marks	p value
Group I	0.3515	<0.05	-0.1259	>0.05
Group II	0.3989	<0.05	-0.0027	>0.05

Table 4 -Comparison of attendance percentage with mean marks

Marks	Attendance	Internal Assessment (Mean±SD)	p value	University Exam (Mean±SD)	p value
Theory	<50%	9.1 ± 1.2	<0.05	77.6 ± 10.5	>0.05
	50-75%	10.0 ± 0.9		81.0 ± 6.2	
Practical	<50%	9.4 ± 1.6	<0.05	17 ± 3.8	>0.05
	50-75%	10.0 ± 1.6		18 ± 3.1	

46.4 % of the students in Group II having attendance between 50 -75% scored equal to or more than 50% marks, while only 25.9% of the students with poor attendance could score more than 50% marks (Table 2). Statistically significant difference was found between marks in Internal Assessment and attendance. Students having higher attendance in practical are more likely to score high marks in internal assessment practical examination. 80.5% students in Group II could score equal to or more than 50% marks in University theory examination as compared to 74.1% students in Group I. But difference was not statistically significant.

Result of Pearson's correlation is shown in table 3(a), which shows that attendance and Internal Assessment marks in theory are correlated. But statistically no significant positive correlation was observed between attendance and academic performance in University theory.

Result of Pearson's correlation is shown in table 3(b), which shows that attendance and Practical Internal Assessment marks are correlated. Although technically a negative correlation was found between University practical marks and attendance, the relationship between these variables is only weak.

There was significant effect of attendance, group II, with attendance between 50-75%, attaining higher scores as compared to Group I having attendance less than 50% in Internal Assessment Theory as well as Practical Examination. But no such effect was observed in University Theory and Practical Examination though the students in group II, scored higher marks as compared to those in group I, both in theory and Final Examination.

DISCUSSION

Previous studies have shown a positive but weak correlation between attendance percentage and academic outcome.⁹ Although several confounding factors may affect academic outcome, class attendance has shown to have a consistent relationship with cognitive ability and academic outcome in students.⁸ In this study there was a significant correlation between attendance percentage and internal assessment marks in both theory and practical. These results are comparable to the study by Sangeeta M and Varalakshmi K.² and Biswas SS, Jain V⁷, Lima Koruthara Mohanan et al⁸, Richard P Deane and Deidre J Murphy⁹, Roy SS and Chadawada J¹⁰, which reported a significant positive correlation between attendance and academic performance in internal assessment marks for both theory and practical examination.

In this study no association was observed for University theory and practical marks contradictory to the findings observed by VaruM¹¹ which shows statistically significant positive correlation between attendance and academic performance in both theory and practical. Another study by Biswas SS, Jain V⁷ analysed the impact of enforced attendance policy of 90% and compared the performance of student group having 75% attendance with students having 90% attendance. They found an improvement in academic performance by 7%.

In the present study, students having less attendance did not show a significant correlation with University marks. This could be because of their intensive pre-examination studies. Another reason for this might be the 60 extra classes conducted by the department, after preliminary examination, to enhance the stu-

dents attendance so as to make them eligible for university examination and the same was confirmed by positive feedback given by the students at the end of extra classes.

A study conducted by Damian Het al¹² on comparison of the two semesters, the significant improvement in attendance was not reciprocated with an improvement in academic performance. A previous study by Hammen, CS and Kelland, JL¹³, which investigated an introductory course, Human Physiology, at another medical teaching institution had shown a statistically significant correlation between attendance and academic performance. However, the effect was of such a small magnitude, that the authors concluded that the effect of attendance on academic performance was helpful statistically, but attendance was not a decisive factor in the learning process for the physiology course.

The results from the overall data analysis indicate that attendance, even though critical to the learning process, is not the single most important factor in the learning process and suggest that other factors are critical to academic success. Besides student-related factors, the effect of other factors, particularly classroom and teaching-related ones should be considered in the analysis of student attendance and academic performance. The results of this study indicate that attendance is not the only factor in improving academic performance. This view is also supported by Amini et al¹⁴ which shows the results of the students' viewpoints toward academic success and revealed that 4 themes: personal abilities, attitude, beliefs and motivation, effort and endurance and supportive factors were significant for academic success.

CONCLUSION

This study demonstrates a significant association between attendance percentage and academic performance in internal assessment theory and practical examinations of Community Medicine among Third MBBS Part I. But also indicate that attendance is not the only factor in improving academic performance.

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