

## Co-relation of attendance and academic performance of first year MBBS students in Biochemistry

Mrs. R. N. Pathak<sup>1</sup>, Dr S. T. Nemade<sup>2</sup>, Dr S.D. Wankhade<sup>3</sup>

<sup>1</sup>(Assistant Professor, Department of Biochemistry, Dr Vasanttrao Pawar medical college, Nashik, MUHS, Maharashtra, India)

<sup>2</sup>(Professor, Department of Biochemistry, Dr Vasanttrao Pawar medical college, Nashik, MUHS, Maharashtra, India)

<sup>3</sup>(Assistant Professor, Department of Biochemistry, Dr Vasanttrao Pawar medical college, Nashik, MUHS, Maharashtra, India)

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### Abstract-

**Background-** For a competent medical practitioner, depth of knowledge is required at higher level and for which attendance becomes mandatory in academic sessions. Class attendance provides them a positive character building opportunity and teaches ways to develop discipline, commitment, tenacity, self-control and a healthy respect for college authority. Hence this study was done to correlate attendance and academic performance of first MBBS students in Biochemistry.

**Material and methods-** A comparative study of attendance and academic performance in examinations (two internal assessment and final university) was conducted for first MBBS students of academic year 2018-19 in the subject of Biochemistry. Students were divided into three groups depending on percentage attendance as Group I-attendance more than 80%, Group II- attendance between 60-80%, Group III-attendance less than 60% for all three examinations. For each group, internal assessment and university performance in terms of marks was compared in three categories as less 50%, more than 50%, more than 75%. This data was analyzed using Chi square and paired t test.

**Results-** The students with higher attendance showed high performance in the examinations. The percentage of performance also increased from internal assessment to university examinations with the counseling of the students for attending regular classes. ( $p < 0.001$ )

**Conclusion-** This study showed a positive co-relation between the attendance and academic performance for the first year students in Biochemistry. Monitoring of attendance and counseling of the students for low attendance helped to improve the performance. More studies need to be carried out considering the obstacles for absenteeism.

**Keywords-** Academic performance, attendance, Biochemistry, internal assessment, university

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### I. Introduction

Medical student learn by the skills of knowledge and performance. For a skilled doctor, not only clinical approach but knowledge in depth is also mandatory. For this purpose, attendance for theory, practical classes and clinical postings is important.

Students are exposed to various concepts for the first time during their medical graduation.[1] Organized lectures and tutorial classes are part and parcel of modern days academic activities. Regular attendance in classes help a student to get clear idea about the subjects of discussion as per course curriculum, which is essential for performing better result in examinations as well as in profession.

Class attendance provides them a positive character building opportunity and teaches ways to develop discipline, commitment, tenacity, self-control and a healthy respect for college authority [2]. Students learn by actual exposure to the hands on, practical and communication which is an integral part of medical academics.

Most of the universities consider the percentage of class attendance before allowing a candidate to appear in the examination. Our university, Maharashtra University of Health Sciences, (MUHS) Nashik considers a minimum attendance of 75% in theory and 80% in practical during an academic session as eligibility criteria for university examination.[3] Students attendance is an integral part of professional development and from a regulatory perspective, considers evidence of professionalism.[4]

Biochemistry being an important subject in basic sciences, contributes to the diagnostic and prognostic approach of the disease. This subject helps the students to know the normal and abnormal metabolic reaction and their co-relation with the diseases. Theory based session helps to understand different biochemical

mechanisms related to important nutrients while practical sessions helps to interpret the laboratory investigation of biochemical parameters with the diagnosis or its correlation with the disease. So attending academic sessions in Biochemistry is very essential. Hence, this study was planned to assess the correlation of attendance and performance of the student.

## II. Material and Methods

An institution based comparative study of attendance and academic performance was conducted for first MBBS students of academic year 2018-19 in the department of Biochemistry.

**Study Design:** Prospective comparative study

**Study Location:** This study was done in Department of Biochemistry, at Dr Vasant Rao Pawar medical college, Hospital and research centre, Nashik, Maharashtra.

**Study Duration:** August 2018-August 2019

**Sample size:** 120 students of first year MBBS.

**Inclusion criteria:** Students who appeared for all the examinations in the academic year.

**Exclusion criteria:** Students who were absent for any one or more examinations in the academic year.

### Procedure methodology:

All the students were explained about the study project. Consent for the same was obtained. 120 students of first MBBS batch-2018-19 (from August 2018 to July 2019) were included in the study. Monthly attendance record was maintained for each student (theory and practical) in percentage form. Internal assessment examinations i.e. terminal and preliminary examinations were conducted as per the schedule finalized by first year academic board. Final university examination marks were also recorded after the university examination. For comparison, attendance of theory and practical was taken in average form

The students (120) of the first MBBS (batch 2018-19) appeared for the internal assessment examinations as per their schedule (Terminal and preliminary) and finally for university examination. The performance of each student in terms of marks was recorded for each examination.

Depending upon the percentage of attendance, students were divided into three groups as

**Group A-** Attendance more than 80%

**Group B-** Attendance between 60-80%

**Group C -** Attendance less than 60%

For the each group, the internal assessment marks and university marks were subdivided into three subgroups as i) Students scoring less than 50% ii) Students scoring More than 50% iii) Students scoring more than 75%.

**Statistical analysis:** Data was analyzed using the Chi square test and paired t test using SPSS. ( $p < 0.0001^*$ )

## III. Results

A total of 120 students were taken for this study. Number of the students in group I, II, III as per their attendance criteria is as follows for internal assessment and university examinations.

**Table I-** Sample size of each group in all examinations.

Group	Criteria	Number of Students		
		Terminal Examination	Preliminary examination	University Examination
Group A	Attendance more than 80%	85	62	62
Group B	Attendance between 60-80%	34	58	58
Group C	Attendance less than 60%	01	00	00

**Table II:** Group attendance and number of students as per their performance after terminal examination

Group	Sample size	Number of students scoring <50% marks	Number of students scoring >50 % marks	Number of students scoring >75% marks	p Value	
A	85	23	62	0	<0.0001*	0.0124*
B	34	18	16	0	0.8085	
C	1	1	0	0	-	
	p value	0.0001*	<0.0001*	-		

Table II shows that the number of students in passing percentage is high in Group I as compared to other groups though the students scoring less than 50% is almost equal in Group A and B. This may be due the fact that at the initial time of the academic year, students are attending the classes but they may take some time to adapt or to get acquainted with the medical curriculum.

**Table III:** GroupWise average attendance and average performance (%marks) after terminal examination

Group	Sample size	Avg. Attendance (%)	<50%marks	>50%marks	>75%marks	p value
A	85	88.5	43.05 ± 6.90	56.00 ± 3.82	0	<0.0001*
B	34	72.3	42.20 ± 5.40	54.90 ± 3.30	0	<0.0001*
C	1	47	38.50 ± 0.00	0	0	-

Table III shows the percentage attendance and %marks as per their performance which is also statistically significant in Group A and B as compared to Group C.

**Table IV:** Group attendance and number of students as per their performance after Preliminary examination

Group	Sample size	Number of students scoring <50% marks	Number of students scoring >50 % marks	Number of students scoring >75% marks	p value	
A	62	1	49	12	<0.0001	0.0028*
B	58	0	58	0	-	
C	0	0	0	0	-	
	p value	-	0.0007*	-		

Table IV shows that the passing percentage is significantly high in Group A and B with addition of high number of students in Group A with marks more than 75%. Compared with table II, there is significant decrease in number of students scoring less than 50% marks in group A and B.

**Table V:** GroupWise average attendance and average performance (%marks) after preliminary examination

Group	Sample size	Avg. Attendance (%)	<50%marks	>50 %marks	>75% marks	p value
A	62	83.4	45.5 ± 0.00	91.4 ± 8.53	108.7 ± 2.84	<0.0001*
B	58	77	0	87.29 ± 10.55	0	-
C	0	0	0	0	0	-

Table V shows the percentage attendance and % marks as per their performance which is also statistically significant in Group A as compared to Group B and C. The average marks in the subgroup of more than 75% marks also statistically significant in group A.

Comparison of table III and table V shows that in Group B, there is significant decrease, (almost zero) in the students scoring less than 50% marks while there is significantly high performance of students in percentage marks with the subgroup of more than 50% marks.

The students with attendance less than 60% in group C had also came to zero due to timely counseling of the students for attending the classes.

**Table VI:** Group attendance and number of students as per their performance after University examination

Group	Sample size	<50%marks	>50 %marks	>75% marks	P value
A	62	1	42	19	<0.0001*
B	58	0	55	03	<0.0001*
C	0	0	0	0	-

Table IV shows that number of students scoring more than 75% marks has increased significantly in Group A and B. There is highly significant decrease in the number of students scoring less than 50%marks.

**Table VII:** GroupWise average attendance and average performance (%marks) after University examination

Group	Sample size	Avg. Attendance (%)	<50%marks	>50 %marks	>75% marks	p value
A	62	83.4	91 ± 0.00	136.1 ± 9.37	155.9 ± 4.54	<0.0001*
B	58	77	0	130.3 ± 11.10	151.7 ± 1.15	<0.0001*
C	0	0	0	0	0	-

Table VII shows that the performance of the students has increased significantly in group A as well as in group B. Compared with the performance of the preliminary examination in table V, there is significant improved performance showing that the attendance has helped the students to understand the concept very nicely which has reflected as high performance.

#### IV. Discussion

Medical students play different role in the society as a professional. Not only knowledge but other skills like leadership, communication and attitude are also important. These skills and knowledge are learnt by the students through the various activities done during the academic sessions. For this, attendance becomes an integral part of medical education.

Our study was aimed at finding this co-relation and showed that there is significantly positive co-relation of attendance and academic performance of the student. Findings of our study are in accordance with the study done by Lima K.M.[1],M Ahmad [2] and S.A. Mundewadi et al [3].

Our study also indicates that attendance can be used as a predictor of academic performance and can also be used to identify the students with low attendance. Faculty can guide these students to improve further in academic performance through counseling or discussion of the topics or by giving assignments. This is seen in the study done by Xiaqian Fang [5],Islam MZ et al [6]. We considered the theory as well as practical attendance for the performance as practical experience is also crucial in the medical education. Study by Nida Nowreen [7] also showed the co-relation of academic performance in theory and practical in the subject of Physiology and by Lima K.M.in Pharmacology [1].

Our study supports that mandatory attendance guidelines by university also has positive co-relation with the academic performance which is in accordance with Subramaniam BS [8] and Daniel R. Marburger [9]

We had analyzed only academic performance and its co-relation with attendance. Other factors like English language, psychological status, study habits, learning styles are not taken into consideration. [10] Some students with high grasping power may understand the subject in short span of preparatory leave before examination though their attendance is low.[11] This fact was not addressed in our study and should be concerned when such type of studies are done on larger scale. This will also motivate faculty to realize the importance of relevance of classes and to keep themselves updated with the recent advances. [12] Accordingly faculty can modify their teaching methods to attract students for attendance so that ultimately the students' performance will be increased significantly.

#### V. Conclusion

This study showed a positive co-relation between the attendance and academic performance for the first year students in Biochemistry. Monitoring of attendance and counseling of the students for low attendance helped to improve the performance. More studies need to be carried out considering the obstacles for absenteeism.

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