Attitude of Undergraduate Medical Students towards Classroom Lecture Absenteeism and its Association with Academic Performance

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ABSTRACT

Introduction: Classroom lecture absenteeism is a challenging issue among medical educators. The benefit of attending lecture classes on academic performance has already been documented. Very few studies have explored the attitude of undergraduate medical students towards classroom lecture absenteeism and its association with the students' academic performance.

Aim: To explore undergraduate medical students' attitude towards classroom lecture absenteeism, its association (if any) with academic performance (measured by total marks obtained in semester marks) and also to evaluate the attitude of the students towards attending classroom lectures on pre and paraclinical subjects.

Materials and Methods: This anonymous structured questionnaire based observational study was conducted in the Departments of Biochemistry and Pharmacology in the month of September 2021, of a tertiary care government medical college. Phase 1 (n=98) (batch 2021-22) and phase 2 (n=97) (batch 2020-2021) MBBS students of the government medical college were included. Descriptive statistics, Chi-square test and one-way Analysis of Variance (ANOVA) tests were used to analyse the data. The p≤0.05 was considered as statistically significant.

Results: Out of 195 students, (male: female ratio being 2:1) 94.87% stayed at hostel. Most of them (51.28%) agreed to attend the classroom lectures for pre and paraclinical subjects for getting attendance. It significantly affected the academic performance of the students (p=0.005). A 61.02% students wanted the lecture classes for pre and paraclinical subjects to be optional. Again 76.92% of them thought attending lecture classes have positive impact on their academic performance. The choice of opinion significantly (p<0.001) affected their academic performances. A 56.41% of the students agreed to skip lecture classes 2-3 times per week and cited the most common reason being "not liking the teaching of a particular teacher." The choice of the students significantly affected the academic performance (p<0.001). A 67.69% of them opined that by reducing the duration of the class, classroom lecture classes on pre and paraclinical subjects can be improved, and there was significant association between the choice and the academic performance of the students (p<0.001).

Conclusion: Although majority of the students understood the positive impact of lecture classes on academic performances and they do not want the lecture classes to become optional, they wanted certain modifications like making the traditional didactic lecture classes more interactive, exam oriented, and concept based. Also some of their attitudes (if not all) affected their academic performances significantly.

Keywords: Didactic lecture, Interactive lectures, Medical education, Pre and paraclinical subjects

INTRODUCTION

In recent years, all over the world poor attendance in lecture classes has been a challenging issue for medical educators [1]. Several studies have documented the downward trend of lecture attendance among medical students [1-3]. As per the Association of American Medical College, from 2015 to 2017, the second year undergraduate medical students' response regarding how frequently ("often" or "most of the time") they attend classroom lecture classes declined to 47.3% from 52.3% [2].

Poor attendance of lecture classes has negative impact on the medical school experience like damaged faculty morale which can inturn lead to poor quality of teaching in future and also falling faculty retention rate [3]. For the students' point of view, those who do not attend adequate number of lecture classes may lack the professional behaviour and attitude expected of them after graduation [3]. Also, there is a chance that poor lecture attendance might impact the academic performance of the students; however, some studies have documented an opposite outcome [4-7]. Several factors have been identified as reasons for poor lecture attendance. These are availability of high quality video recordings of lecture classes on the internet allowing the students to study at their own pace, and availability of number of high quality online up to date resource material [8].

Several studies have documented that students of different age groups and gender prefer online resource material in different ways [9-11]. Wynter L et al., conducted a study on medical students regarding their use of educational resource material [12]. The researchers found that although the popularity of e-learning cannot be denied, traditional classroom lectures remain the most trusted source of learning new topic [12]. They also noted while there was some age dependent difference regarding choice of learning material, there were no gender based differences [12].

In another study by Gupta A and Saks NS to explore medical students' choice regarding attending live lecture classes or recorded lecture sessions, the researchers found that female students and first year medical students are more likely to attend lecture classes compared to second year medical students [13]. According to faculty members, attending lecture classes are essential for medical students, as it helps the students to develop professional skills, and indepth understanding of the basic medical sciences which help in their growth as professionals in future [7,13]. There are not many available studies [14,15] which have explored the undergraduate medical students' attitude towards attending lecture classes of pre and paraclinical subjects. As understanding the students' views, expectations and feedbacks in this regard might help in bringing them back to lecture classes.

In this study, undergraduate medical students' attitude towards classroom lecture absenteeism, its association (if any) with academic performance (measured by total marks obtained in semester marks) and also the attitude of the students towards attending classroom lectures on pre and paraclinical subjects were explored.

MATERIALS AND METHODS

This anonymous self-administered structured closed ended questionnaire based observational study was conducted in Diamond Harbour Government Medical College, Diamond Harbour, West Bengal, India during the month of September 2021. Ethics Committee permission (DHGMC/2021/983 dated 21/2/21) was obtained and informed consent from all the students were taken.

Inclusion criteria: All the MBBS students of Phase 1 (2021-22) (anatomy, physiology, and biochemistry) and Phase 2 (2020-21) (pathology, microbiology, pharmacology, and forensic medicine) were included.

Exclusion criteria: Unwilling students were excluded.

Sample size: Minimum sample size estimated with 95% confidence interval and margin of error of 3% was 166. However, authors included all the willing students of the phase 1 (n=98) and phase 2 (n=97) MBBS batches of our college in the study.

The self-administered questionnaire for prevalidation and pretesting was given to the remaining faculty members of the Department of Pharmacology (except, the two researchers involved in the study) (n=4) and to the students (phase 1; n=5 and phase 2; n=5) from same phases of different college under the same university. They were asked to fill in anonymously a 5 point Likert scale (scored 1-5; score 1: strongly disagree, score 2: disagree; score 3: neutral; score 4: agree, and score 5: strongly agree; minimum score was 4, and maximum score was 20). Questionnaire [Annexure 1] on content, clarity, language, and understandability of the study questionnaire. Cronbach's alpha value for the questionnaire designed to validate the study questionnaire was 0.73 for all the items.

Next, the students were instructed by two separate teachers from phase 1 and phase 2, by two researchers from two phase 1 and 2, respectively regarding how to fill in the study questionnaire [Annexure 2] and especially about assigning scores based on 5-point Likert scale. Ten minutes were assigned to fill in the questionnaire consisting of 4 sections (a total of 20 questions) namely A (consisting of 4 questions), B (consisting of 5 questions), C (consisting of 4 questions) and D (consisting of 7 questions) under supervision of the teachers (SS and PS) [Table/Fig-1]. After 10 minutes, the questionnaires were collected and checked for completeness.

STATISTICAL ANALYSIS

The data were then put on Microsoft spread sheet for analysis. Statistical Package for the Social Sciences (SPSS) version 25.0 was used for statistical analysis. Descriptive statistics, Chi-square test and one-way ANOVA were used for analysis of the data. The p≤0.05 was considered as statistically significant.

RESULTS

Demographic profile of the students: In this study, there were a total of 195 participants with 130 male students. There was no significant difference in academic performance between the two phases of students (p=0.638) [Table/Fig-2].

Students' attitude towards classroom based lectures on pre and para subjects: Majority of the students (n=100; 51.28%) agreed to attend the classroom lectures for pre and paraclinical subjects for getting attendance [Table/Fig-3]. There were no significant differences in opinion among male and female students within the same academic phases for both the phases (phase 1 and phase 2); however, the gender based difference in opinion was significant when compared between the two phases (phase 1 and phase 2)
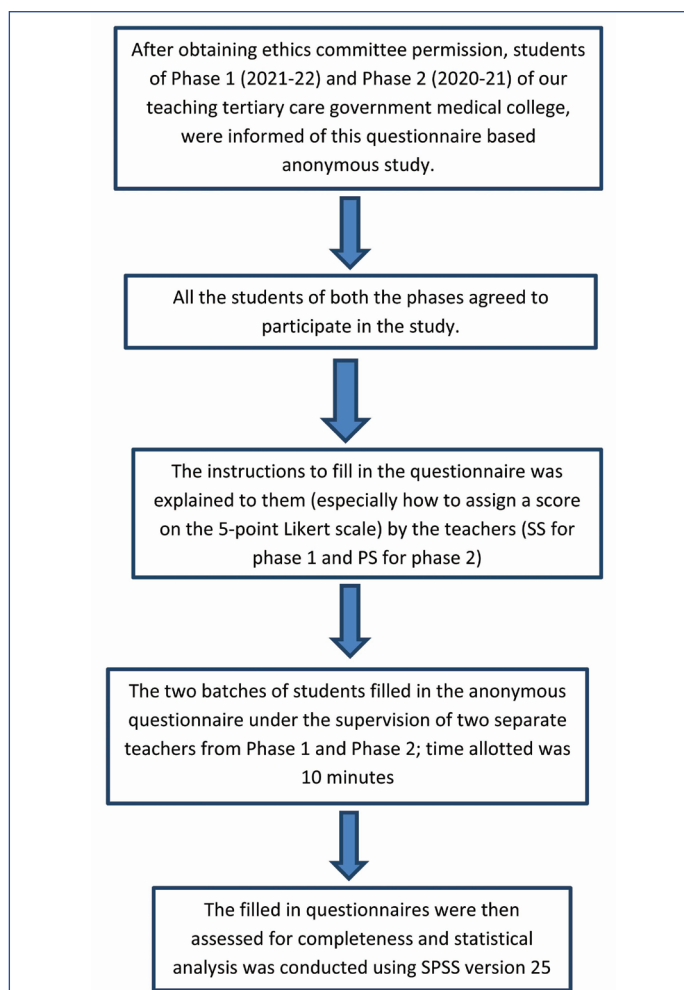
[Table/Fig-1]: Flowchart depicting the study design.
SS: Sarmishtha saha; PS: Parama sengupta

Academic year	Gender		Academic performance (Semester wise)				
	M	F	A	B	C	D	E
1st phase	66	32	1	29	39	14	15
2nd phase	64	33	3	31	42	11	10
p-value: 0.638							
Place of stay							
Hosteller	122	63	3	59	76	24	23
Day scholar	8	2	1	1	5	1	2
p-value: 0.249							

[Table/Fig-2]: Students' details: Gender, academic year and semester wise academic performance.
Percentage of aggregated marks obtained in semester examinations: A=>75%; B=75-65%; C=64.9-55%; D=54.9-50%; E=<50%; statistical test used: Chi-square test

(p=0.017). Again choice of answer in this regard ("yes" and "no") has significantly affected the combined academic performances of both the phases of students (p=0.005) [Table/Fig-3].

Most of the students (n=150; 76.92%) thought attending lecture classes have positive impact on their academic performance. There were no significant differences in opinion among male and female students both within the same phase and between the two phases. However, the choice of opinion significantly (p<0.001) affected their academic performances [Table/Fig-3].

Most of the students (n=110; 56.41%) agreed to skip lecture classes around 2-3 times per week. The differences in the academic performance based on the number of lecture classes usually skipped by the students were significant (p<0.001) [Table/Fig-3]. Also, the number of classes skipped by students every week varied significantly (p=0.01) among male and female students from phase 1 but not from phase 2 and also not when all the students from both the phases were considered [Table/Fig-3].

Questions	1st phase MBBS students (n=98)			2nd phase MBBS students (n=97)			p-value (1st phase vs 2nd phase)	Academic performance					p-value
	Male (n=66)	Female (n=32)	p-value	Male (n=64)	Female (n=33)	p-value		A	B	C	D	E	
Do you attend pre/paraclinical subjects lecture classes only for attendance													
Yes (51.28%)	27	15	0.5757	41	17	0.232	0.017	2	37	32	19	10	0.005
No (48.72%)	39	17		23	16			2	23	49	6	15	
Do you think basic science classroom lectures should be optional													
Yes (61.02%)	39	18	0.79	45	17	0.067	0.410	1	33	47	18	20	0.076
No (38.98%)	27	14		19	16			3	27	34	7	5	
Do you think basic science classroom lectures have positive impact on your marks													
Yes (76.92%)	53	22	0.205	50	25	0.791	0.895	3	54	63	22	8	<0.001
No (23.08%)	13	10		14	8			1	6	18	3	17	
How many times you usually bunk a basic science classroom lecture per week													
1-2 times (3.59%)	1	3		1	2			1	1	3	1	1	
2-3 times (56.41%)	37	15	0.01	38	20	0.29	0.803	1	40	59	8	2	<0.001
3-4 times (26.15%)	15	13		14	9			1	18	17	12	3	
More than 4 times (13.85%)	13	1		11	2			1	1	2	4	19	
Reasons behind skipping basic science classroom lecture classes (more than one option can be chosen)													
*Does not like the teaching of a particular teacher (85.12%)	50	28		59	29			3	59	59	22	23	
*Early morning class (before 9 am) (84.10%)	59	20		57	28			2	54	66	19	23	
*Late class (after 3 pm) (65.12%)	47	22	0.67	40	18	0.40	0.445	1	42	48	20	16	0.30
*Does not need to attend lecture class on a specific topic (79.48%)	58	25		55	17			3	51	67	16	18	
*Will learn better by self- learning (60.51%)	34	18		44	22			3	37	48	20	10	
*Lecturer not strict about attendance (45.64%)	36	12		23	18			1	19	35	11	23	

[Table/Fig-3]: Students' attitude towards classroom based lectures on pre and paraclinical subjects.
Percentage of aggregated marks obtained in semester examinations: A=>75%; B=75-65%; C=64.9-55%; D=54.9-50%; E=<50%; statistical test used: Chi-square test; *more than one option
p-value <0.05 considered significant

Upon enquiring regarding the reasons behind skipping lecture classes for pre and paraclinical subjects, most of the students (n=166; 85.12%) said they did not like the teaching of a particular teacher [Table/Fig-3].

Students' input: How to improve classroom lectures on pre and paraclinical subjects: Most of the students (n=173; 88.72%) opined that classroom lectures on pre and paraclinical subjects can be improved by making them more interactive and the choice of opinion showed significant association with academic performance (p=0.009) [Table/Fig-4]. Majority of the students agreed (n=132; 67.69%) that by reducing the duration of the class, classroom lecture classes on pre and paraclinical subjects can be improved, and there was significant association between the choice ("yes" or "no") and the academic performance of the students (p<0.001) [Table/Fig-4]. Also, the difference of choice was significant among male and female students of phase 2 (p=0.03) [Table/Fig-4].

Most of the students opted for use of chalk and talk (n=154; 78.97%) and audio visual aids (n=144; 73.84%) during lecture classes. There were significant association between choice of teaching method and students' academic performance (p<0.001) [Table/Fig-4].

Again majority of the students (n=177; 90.77%) opined that by teaching using clinical correlation and clinical cases and concept building manner, lectures can be improved. Academic performance was significantly associated (p=0.009) with choosing the options "using clinical correlation and clinical cases" [Table/Fig-4]. There were no significant differences among male and female students except for those from phase 2 batch (p=0.0008) in "teaching in a concept building manner" [Table/Fig-4].

A 94.87% (n=185) students wanted the teaching in lectures to be exam oriented [Table/Fig-4]. Although there were no significant differences in opinion among male and female students within the same batch and between the two batches [Table/Fig-4].

Questions	1st phase MBBS students (n=98)			2nd phase MBBS students (n=97)			p-value (1st phase vs 2nd phase)	Academic performance					p-value
	Male (n=66)	Female (n=32)	p-value	Male (n=64)	Female (n=33)	p-value		A	B	C	D	E	
By making them more interactive													
Yes (88.72%)	59	27	0.48	57	30	0.777	0.67	3	59	68	19	24	0.009
No (11.28%)	7	5		7	3			1	1	13	6	1	
By reducing the duration of lecture													
Yes (67.69%)	45	21	0.800	39	27	0.03	0.92	2	53	40	20	17	<0.001
No (32.31%)	21	11		25	6			2	7	41	5	8	
By using (More than one option)													
*Audio Visual aids like ppt presentations (73.84%)	58	22		38	26			2	54	62	17	9	
*Chalk and talk (78.97%)	49	28	0.34	48	29	0.15	0.55	3	53	59	19	20	<0.001
*By showing interesting Video (56.92%)	37	19		43	12			4	12	55	24	16	
*by using anecdotes (39.48%)	35	10		21	11			1	8	31	19	18	

By adding clinical correlation and case studies														
Yes (90.77%)	59	28	0.78	60	30	0.60	0.33	3	59	75	21	19	0.009
No (9.23%)	7	4		4	3			1	1	6	4	6	
By teaching in a concept building manner														
Yes (90.77%)	63	23	<0.001	60	31	0.97	0.14	3	53	76	24	21	0.3195
No (9.23%)	3	9		4	2			1	7	5	1	4	
By teaching in exam oriented manner														
Yes (94.87%)	60	31	0.28	63	31	0.22	0.20	3	55	80	23	24	0.130
No (5.13%)	6	1		1	2			1	5	1	2	2	
By sharing (More than one option)														
Power point presentation slides of the lectures/lecture handouts (63.07%)	46	19	0.175	41	17	0.0008	0.84	3	51	52	9	8	0.93
Study material (hard copy) from standard text books (45.12%)	23	20		17	28			1	34	38	7	8	
Online resource materials from the internet (soft copy) (48.71%)	29	19		33	14			3	32	41	9	10	

[Table/Fig-4]: Students' input: How to improve classroom lectures on pre and paraclinical subjects.
Percentage of aggregated marks obtained in semester examinations: A=>75%; B=75-65%; C=64.9-55%; D=54.9-50%; E=<50%; statistical test used: Chi square test; *more than one option

A 63.07% (n=123) students wanted power point presentation slides of the lectures/lecture handsout, 48.71% (n=95) students wanted online resource material (soft copy) and 45.12% (n=88) of them wanted hardcopy of the resource material. Students' opinion regarding how pre and paraclinical classroom lecture sessions improve preparation for examination.

Majority of the students gave a score of 3 out of 5 on Likert scales for the different ways lecture classes in basic sciences improve preparation for examination namely "by concept clearing" (n=135; 69.2%), "by using the notes taken during lecture sessions" (n=136; 69.74%), "by using the lecture handouts/ppt slides/course materials shared by the teacher" (n=109; 55.89%), and "through interaction with teacher" (n=120; 61.53%) [Table/Fig-5a]. However, comparison of Likert scale scores of students' input regarding how classroom lectures on pre and paraclinical subjects help students to prepare for exams revealed no significant difference [Table/Fig-5b].

Students' inputs	Likert scale scoring				
	1	2	3	4	5
By concept clearing (p=0.2916)					
Male (66, 64)=130	4 (3.08%)	19 (14.62)	88 (67.69%)	18 (13.84%)	1 (0.77%)
Female (66, 64)=130	1 (1.54%)	7 (10.77%)	47 (72.31%)	8 (12.31%)	2 (3.07%)
By using the notes taken during lecture sessions (p=0.9631)					
Male (66, 64)=130	0	27 (20.77%)	93 (71.54%)	7 (5.38%)	3 (2.31%)
Female (66, 64)=130	1 (1.54%)	13 (20%)	43 (66.15%)	5 (7.69%)	3 (4.62%)
By using the lecture handsout/ppt slides/course materials shared by the teacher (p=0.8833)					
Male (66, 64)=130	6 (4.62%)	31 (23.85%)	81 (62.30%)	9 (6.92%)	3 (2.31%)
Female (66, 64)=130	8 (12.31%)	16 (24.62%)	28 (43.08%)	11 (16.92%)	2 (3.07%)
Through interaction with teacher (p=0.7634)					
Male (66, 64)=130	2 (1.54%)	29 (22.30%)	89 (68.46%)	6 (4.62%)	4 (3.08%)
Female (66, 64)=130	1 (1.54%)	19 (29.23%)	31 (47.69%)	9 (13.85%)	5 (7.69%)

[Table/Fig-5a]: Students' input: How classroom lectures on pre and paraclinical subjects help students to prepare for exams. (Statistical test used: Chi-square test)

DISCUSSION

In this study, majority of the participating students (irrespective of gender and educational year) opined that they attended lecture classes of pre and paraclinical subjects for attendance and the choice was significantly associated with the students' academic performance (p=0.005).

How classroom lectures on pre and paraclinical subjects help students to prepare for exams	Students' input (Likert scale sores)		p-value
	Mean	SD	
By concept clearing	2.887179	0.656129	0.185
By using the notes taken during lecture sessions	2.907692	0.635458	
By using the lecture handsout/ppt slides/ course materials shared by the teacher	2.769231	0.826792	
Through interaction with teacher	2.892308	0.748671	

[Table/Fig-5b]: Comparison of Likert scale scores of students' input regarding how classroom lectures on pre and paraclinical subjects help students to prepare for exams.
Statistical test used: one-way ANOVA

Most of them (from both the phases) thought that lectures for basic sciences (pre and paraclinical subjects) should be made optional; however, the difference in opinion was not significant among male and female students from each of the batch and between students from the two batches. Again, most of them agreed that attending lectures have a positive impact on their academic scores; it was also supported by the significant differences in the scores between students who agreed and who did not agree with the positive impact of attending lecture classes on academic performance (p<0.001). Also, academic scores were significantly better (p<0.001) in students who skipped around 2-3 lecture classes per week compared to students who skipped 3-4 and >4 lecture classes per week. In a similar study like this conducted by Wongtrakul W and Dangprapai Y among dental students regarding the reasons for dental students to skip lecture classes the students strongly believed that lecture classes have positive impacts on their academic score [16]. In that study, the researchers also noted that the underachievers were more likely to skip classes compared to students who scored higher marks. Although despite having similarities with present study in the above findings, in their study most of the students unlike this study wanted attending lecture classes to be optional.

Again, probing about the reasons for skipping the lecture classes most of the students cited the reason of "not liking the teaching of a particular teacher" as the most common reason followed by "early morning classes"; however, there were no significant (p=0.27) differences in the academic scores among the students citing different reasons for not attending lecture classes. In the study by Wongtrakul W and Dangprapai Y, the timing of scheduling the lecture class (early morning) was cited as the most common reason for skipping the class and poor presentation skills of the lecturers was cited as the third most common reason for skipping lecture classes [16]. In present study "early morning classes" was the second most commonly cited reasons for skipping lecture classes.

Most of the students in present study opined that lecture classes can be improved "by making them more interactive", "by reducing duration of lecture class", by using different ways like "power point

presentation", "chalk and talk", "by showing interesting video", and "by sharing anecdotes". Most of them also wanted the lectures to be in exam oriented fashion (94.87%), in concept building (90.77%) and by using clinical correlation and case studies (90.77%).

In another study, Mokhtari S et al., investigated the reasons behind students' attendance in and absenteeism from lecture classes [17]. They noted that like present study "decreased class efficiency" to be the leading reason cited by the students for skipping a lecture class. The researchers also noted that improving teaching prowess of the teachers, better evaluation system, availability of audio visual equipment and taking classes at favourable timings are the different ways that can reduce lecture class absenteeism. In present study, students also pointed out several similar ways to improve lecture classes.

In another study Desalegn AA et al., explored medical students' absenteeism in Ethiopia [18]. They noted that preparing for another examination, lack of interest in the topic, teacher's teaching methods, and availability of lecture material from other sources are the main reasons behind skipping classes among undergraduate medical students.

Worldwide including India, the selection process for enrolling in medical schools is quite demanding and challenging. In India the National Medical Commission (NMC) regulates the medical education by giving recognition of medical qualifications, giving accreditation to medical schools, granting registration to medical practitioners, monitoring medical practice and by assessing the medical infrastructure in India [19,20]. As per the NMC guidelines (Graduate Medical Education Regulation; GMER) 75% attendance in lecture classes alone is compulsory for eligibility to appear in the final university examinations of that subject [20]. However, students in our country like everywhere else have shown an increasing tendency to skip the lecture classes.

Studies have revealed that prestigious institutes like John Hopkins and Harvard Medical Schools have also seen a surprising drop in classroom attendance by 30-40% [4,21,22]. At this age of smart phone and better internet connectivity, many students prefer to watch recorded online lectures available at various sites at their own pace, which has also contributed to lecture absenteeism. Literature review has shown that lecture absenteeism leads to poorer academic performance. Wongtrakul W and Dangprapai Y, performed a study on preclinical medical students in Thailand to assess the impact of attending live lecture classes on academic performance [16]. They found that lecture absenteeism was significantly associated with poorer academic performance among preclinical medical science students. Thus, attending lecture classes is an important measure to improve academic performance of the medical students.

Several studies have also suggested different measures to improve students' attendance in lecture classes [16-18,23-27]. These are like reinforcing strict roll call policies, giving marks for attending classes or deducing marks if attendance is not upto a specified mark, not allowing them to sit for final exam without attending a specific number of classes, etc., [23-27]. Hence, in authors opinion rather than forcing the students to attend lecture classes (by making attending certain number of lecture classes mandatory or deducting marks for not attending classes), they should be motivated to attend the lecture classes by improving the teachers' performance (through various faculty development programs, symposiums, workshops, etc.,), by making the lecture class learner centric (interactive and innovative) and outcome oriented. Any forceful attendance of lecture classes most likely will not lead to active participation of the students and thus will not be reflected positively on students' learning and finally on academic performances.

In this study, it was found that although most of students are in the opinion of making lecture class attendance optional, they do agree on the positive impact of attending lecture classes on their

marks. Thus, the students should be motivated to attend the lecture classes through understanding their needs, expectations and consideration of their opinions like by making the lecture sessions more interactive, exam oriented, in a concept building manner, by using various teaching aids like chalk and talk, power point presentations, paper cases/dummy patients. Also, if and whenever possible logistic changes can also be made keeping in mind the students' opinion, before scheduling lecture classes like avoiding early morning classes or by reducing the duration of lecture sessions or introducing innovative lecture sessions like "flipped classroom sessions" [25] or by planning sessions of content delivery by moderator/facilitators interspersed with active sessions like peer instruction, buzz sessions, think-pair-share sessions, etc., [26].

Adult learning pattern study has established that learner attention span decreases after about 15 to 20 minutes in a typical didactic lecture session; the two most important reasons being working memory and interference [24-27]. As the learner acquires new information, he or she uses the working memory to integrate the new data with existing knowledge to form long term memories. This whole process requires active attention; however, as lecture progresses new information piles up which require more involvement of the working memory which was already active in processing earlier information obtained from the initial parts of the lecture. Hence, the capability of the learner decreases to assimilate new information with existing knowledge, this phenomenon is called interference. Interference thus makes long lectures less fruitful and less enjoyable. Thus, to make lectures fruitful, besides active participation of the learners and improving the teaching quality of the facilitator, one should keep in mind the duration of lecture, as short lectures are more beneficial to students as it respects the learner's limitations as well.

In another similar study like this study, Ramirez BU have explored the undergraduate medical students' live lecture attendance, and perceptions and expectations from the said classes [7]. The researchers like this study have found that students suggested that improving teaching of the faculty members through faculty development programs, exam oriented teaching and designing active learning sessions might change students' attitude to regularly attending classroom lecture classes.

Limitation(s)

There are certain limitations of present study. Firstly, the number of study participants was not adequate. Before bringing about definite modifications in the prevailing lecture sessions in pre and paraclinical subjects, similar studies with larger sample size, to the gauge students' attitude towards attending lecture classes, and also getting feedback from them regarding ways of improving their attendance in lecture classes, are required. Secondly, as the study was conducted in a newly opened government medical college, till now there are only two batches of undergraduate medical students. Hence, to overcome this particular limitation, it has been planned to repeat the study again after two years with two new batches and two of the older batches of students. Although it is not possible to modify the lecture classes for all the topics of all the subjects to be innovative, there are future plans to modify some of the lecture classes in pharmacology by making them more interactive like introducing "flipped classroom sessions" and assess the students' feedback regarding attending lecture classes and comparing with the present study results to check if there is any positive change in the students' attitude towards attending lecture classes on basic subjects.

CONCLUSION(S)

Although majority of the students understood the positive impact of lecture classes on academic performances and they do not want the lecture classes to become optional, they wanted certain modifications like making the traditional didactic lecture classes

more interactive, exam oriented, concept based and shortening of the duration of the lecture.

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ANNEXURE 1
Questionnaire to validate study questionnaire.

	1 (Strongly disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly agree)
Content					
Clarity					
Language					
Understandability					

ANNEXURE 2
Study questionnaire

Instructions: Please go through the questions (three sections) and choose answers following instructions provided with each section

Section A: Put a tick mark on the appropriate response

1. Phase of the student: Phase 1/Phase 2

2. Gender: Male/female

3. Place of stay: Day scholar/Hosteller

4. Self-declared aggregated marks obtained (in %) in semester examinations (1st Semester marks for Phase 1 students and 4th semester marks for Phase 2 students):

- A=>75%

- B=75-65%

- C=64.9-55%

- D=54.9-50%

- E=<50%

Section B: Reasons for skipping classroom based lecture classes

S/L Number	Questions	Options					
Choose only one option							
1.	Do you attend pre/paraclinical subjects lecture classes only for attendance	Y	N				
2.	Do you think basic science classroom lectures should be optional	Y	N				
3.	Do you think basic science classroom lectures have positive impact on your marks	Y	N				
4.	How many times you usually bunk a basic science classroom lecture per week	1-2 times	2-3 times	3-4 times	>4 times		
You can choose more than one option							
5.	Reasons behind skipping basic science classroom lecture classes (more than one option can be chosen)	*Does not like the teaching of a particular teacher	Early morning class (before 9 am)	Late class (after 3 pm)	Does not need to attend lecture class on a specific topic	Will learn better by self-learning	Lecturer not strict about attendance

Section C: Students' input: How classroom lectures on pre and paraclinical subjects help students to prepare for exams (Choose only one option for each of the choice).

S/L Number	Topics	Liker scale scores (within 1-5)				
1.	By concept clearing	1	2	3	4	5
2.	By using the notes taken during lecture sessions	1	2	3	4	5
3.	By using the lecture handsout/ppt slides/course materials shared by the teacher	1	2	3	4	5
4.	Through interaction with teacher	1	2	3	4	5

Section D: Students' input on how to improve classroom based lecture classes

S/L Number	Measures that can be taken	Options		
Choose only one option				
1	By making them more interactive	Y	N	
2	By reducing the duration of lecture	Y	N	
3	By adding clinical correlation and case studies	Y	N	
4	By teaching in a concept building manner	Y	N	
5	By teaching in exam oriented manner	Y	N	
You can choose more than one option				
6	By sharing study material with students	Power point presentation slides of the lectures/lecture handouts	Study material (hard copy) from standard text books	Online resource materials from the internet (soft copy)
7	By using (TLM)	Audio Visual aids like ppt presentations	Chalk and talk	By showing interesting Video / by using anecdotes