Original Article

Relation of Academic Performance and Class Attendance of Undergraduate Medical Students and Reasons of Absenteeism

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Abstract:
Undergraduate medical education demands high attendance for proper understanding and grips over the subjects. So, this cross sectional study was conducted on the three hundreds and fifteen students of third and fourth year during the period July 2014 to December 2016 at Eastern Medical College, Kabila, Comilla, Bangladesh with the aim to determine the relationship between academic performance and class attendance and also to find out the possible reasons of absenteeism in the class. Professional examination score to measure the academic performances and class attendance was collected from the mark sheets of the second professional MBBS examination held under the University of Chittagong during the study period and the attendance register of the five department of third and fourth year (Pharmacology, Pathology, Microbiology, Community Medicine and Forensic Medicine) respectively. Reasons of class absence are collected anonymously by the pretested semi structured questionnaire from the students. Collected data was entered and analyzed using the Microsoft Excel 2016 and SPSS version 23 respectively. Among the students, 171 (54%) were male and 144 (46%) were female. Overall, subject wise and gender wise significantly positive Pearson correlation coefficient was found between examination score and attendance rate. So, there is no better alternative of attending the classes of undergraduate medical course for better academic performance of the medical students. Several factors related to medical students, teaching faculty, teaching material & strategy and educational environment of the medical colleges was found as the reasons of students' absenteeism. So, it is mainly the responsibility of medical faculty and administrators to improve and maintain the quality of educational environment and also to motivate & encourage students to attend the classes for minimization of the reasons related to absenteeism.

Key words: Class attendance, Academic performance, Examination score, Absenteeism

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Introduction:
Aim of the undergraduate medical education is to produce competent doctors with adequate medical knowledge, affective attitude for the patients and proper clinical skills for practice [1]. For the appropriate medical education of the undergraduate students organized lecture, tutorial, practical and clinical classes are arranged by the different government and nongovernment medical colleges for a specified duration following the undergraduate medical curriculum which is prepared and recommended by Bangladesh Medical and Dental Council in Bangladesh and by Medical Council of other countries under the guidance of World Health Organization (WHO) [2,3]. So, to attend the classes of undergraduate medical course regularly is mandatory and also very much helpful for medical student to get a proper and clear idea about the subjects of discussion as per course curriculum, which is essential for the satisfactory academic performance in the examinations [4,5,6].

Besides having potential positive impact on the course performance, class attendance may also encourage the professional socialization as stronger student–faculty interactions and student–student relationships [7,8]. These stronger relationships and better interactions helps medical students to develop professional skills, behaviors, attitudes, and values that is an integral part to a future successful doctor [9,10,11]. But, the poor classroom attendance becomes a major problem in undergraduate medical education program that is reported by many medical faculty and medical administrators [12-19].

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Medical Students' absenteeism in class is related to many factors including student and faculty attitudes about learning, class & examination schedule, quality of teaching materials, assessment methods, online medical learning resources, educational environment of the class, health & lifestyle-related pressures, extra-curricular activities and the overall health of the learner-facilitator relationship [20-28].

So, this study was conducted on the undergraduate medical students with the objective to determine the relationship between academic performance and class attendance and also to find out the possible reasons of absenteeism in the class.

Materials & Methods:
This is a cross sectional study conducted on the 315 students of 3rd & 4th year during the period July 2014 to December 2016 at Eastern Medical College, Kabila, Comilla, Bangladesh.

Class attendance (lecture, tutorial & practical) was collected from the attendance register of the five department of 3rd and 4th year (Pharmacology, Pathology, Microbiology, Community Medicine and Forensic Medicine).

Total and subject wise examination score was collected from the mark sheets of the second professional MBBS examination held under the University of Chittagong during the study period. Causes of absence in the class are collected by the pretested semi structured questionnaire from the students. The study was approved by the Institutional Research and Ethics Committee.

The data of attendance in class and the marks obtained in examination were entered and percentages were calculated in Microsoft Excel 2016, subject wise and in total. Reasons of class absence expressed by the students were also categorized and percentages were calculated using Microsoft Excel 2016. The data were also analyzed using SPSS version 23 and Pearson correlation & Mean ± SE were calculated. Analyzed correlation results were considered significant at the 0.01 level. Weak, moderate and strong Pearson correlation considered at *r* value of +0.30, +0.50 and +0.70 respectively. Analyzed results were tabulated and also expressed using pie, line and bar charts prepared by Microsoft Excel 2016.

Results:
Among the 315 study students, 171 (54%) were male and 144 (46%) were female (Fig. 1).

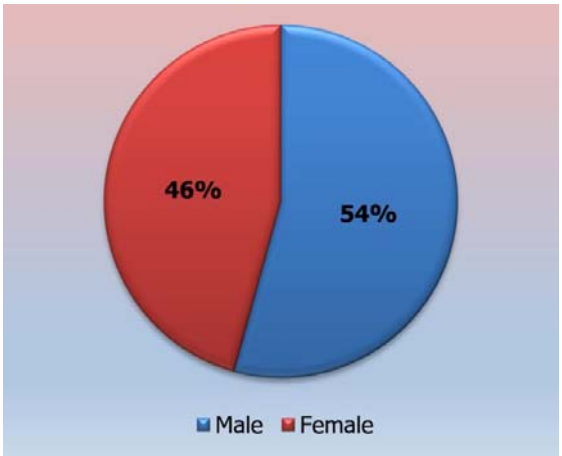

Figure-1: Pie chart showing the percentage of gender of the students

On analyzing data by Pearson correlation coefficient in the SPSS software, there were significant (at the 0.01 level) positive correlation found between attendance rate and examination score in male (r = 0.624) and female students (r = 0.547) and this correlation is more significantly positive in male students than female students (Table I).

Table-I: Comparison of correlation of attendance rate and examination score between male and female students

Gender	Attendance Rate (Mean ± SE)	Examination Score, (Mean ± SE)	*r* value
Male	75 ± 1.21	63 ± 0.63	0.624
Female	79 ± 1.13	64 ± 0.78	0.547

The mean and the standard error of mean of the lecture, tutorial and practical class attendance and also the Mean ± SE of the examination score of the second professional MBBS examination in the five subjects of third and fourth year (Pharmacology, Pathology, Microbiology, Community Medicine and Forensic Medicine) were calculated and expressed in table & bar charts (Table II & Fig. 2).

Table-II: Subject wise average and correlation of attendance rate and examination score of the students

Subject	Attendance Rate (Mean ± SE)	Examination Score (Mean ± SE)	*r* value
Pharmacology	80 ± 0.90	62 ± 0.59	0.537
Pathology	76 ± 0.97	63 ± 0.52	0.566
Microbiology	77 ± 0.93	65 ± 0.57	0.498
Community Medicine	71 ± 0.87	64 ± 0.50	0.371
Forensic Medicine	79 ± 0.91	65 ± 0.54	0.451

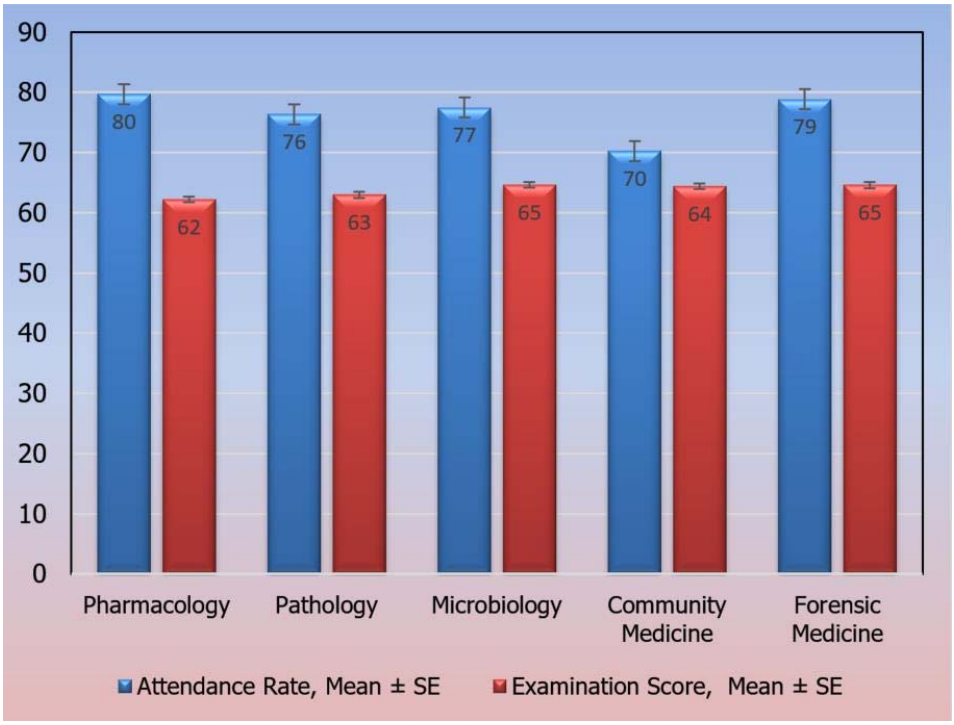

Figure-2: Bar diagram showing the average (Mean ± SE) of attendance rate and examination score of the subject pharmacology, pathology, microbiology, community medicine and forensic medicine

Positive Pearson correlation coefficient was found between subject wise attendance rate and examination score in Pharmacology (r = 0.537), Pathology (r = 0.566), Microbiology (r = 0.498), Community Medicine (r = 0.371) and Forensic Medicine (r = 0.451) which was significant at the 0.01 level and this correlation was highly significant in Pathology and Pharmacology, moderately significant in Microbiology and Forensic medicine and weakly significant in Community Medicine (Table II). Pearson correlation was also positive between overall professional examination score and total attendance rate (r = 0.583) which is significant at the 0.01 level (Fig 3).

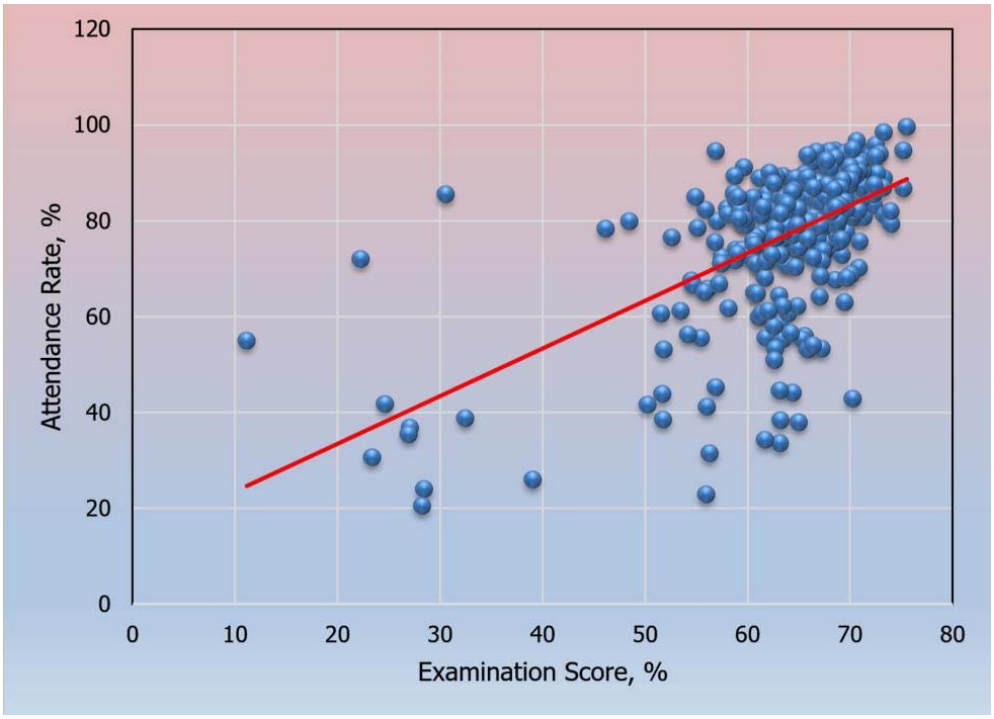

Figure-3: Correlation between overall examination score and total attendance rate (r = 0.583)

The percentages of categorized reasons of absence of the medical students in the class were expressed by pie chart (Fig. 4). Here the principle causes of class absence of the students were observed as sickness (17%), inconvenient class schedule (15%), before or after the examination (12%), lack of interest in subject (11%), class topic not interesting (11%), student were busy in other activities (9%), uncomfortable class environment (8%), inefficient teaching skill of teacher (6%), less motivation by teacher (5%), ease of class subject matter (3%) and can pass exam without attending the class (2%).

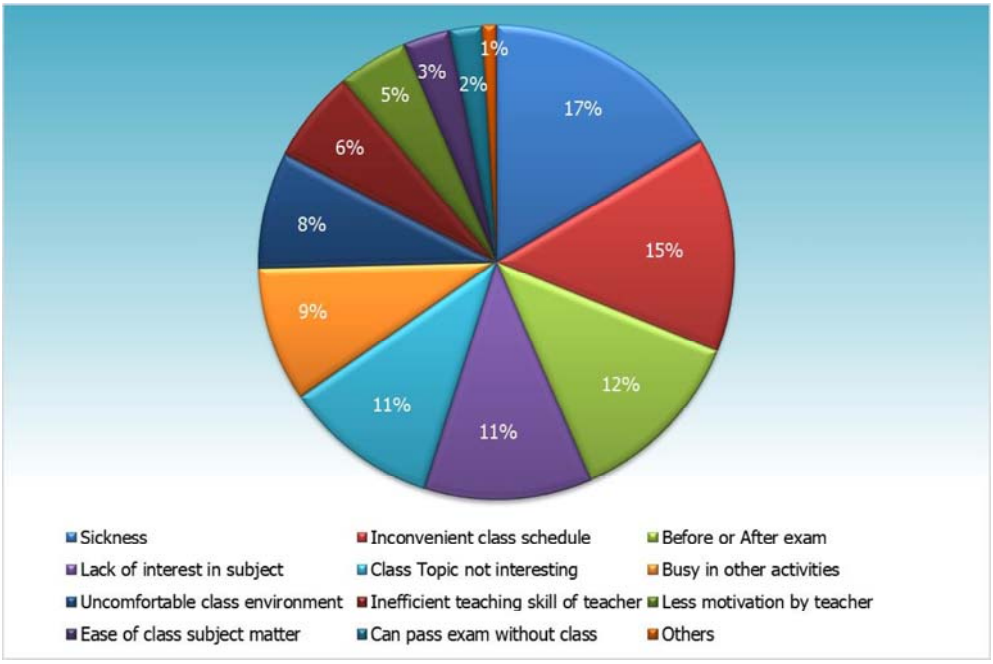

Figure-4: Pie chart showing the percentage of causes of absence in the class

Discussion:

It is evident that medical education like professional courses require high attendance in theory and practical classes for better understanding of the subject and for acquiring skills for better performance of future doctors in their later career life [29-33]. So, medicine faculty of Universities and Medical & Dental Council in Bangladesh introduced mandatory attendance policies of minimum 75% for medical students to become eligible for professional examinations and also set the pass marks in professional examination at 60% [4,24,25,34].

Again medical colleges encourages and motivated the students to attend all the classes of the course as every class of this professional course is important and some medical colleges also implemented absent fine [4,24,25,34,35]. Despite this, absence of students in the classes of medical colleges become a big continuous problem for medical education.

Our study revealed that there was a positive correlation between overall examination score and total attendance rate (Fig. 3). Subject wise correlation in the five subjects of third and fourth year (pharmacology, pathology, microbiology, community medicine and forensic medicine) was also positive though there was difference in intensity of significance level among the subjects (Table II). These findings of positive correlation between examination score and attendance rate is similar to the results of several previous studies [12-19,29-33].

Considering the gender, the study also found positive correlation between attendance rate and examination score in male and female students and this correlation is more significantly positive in male students than female students. So, influence of the regular attendance on examination performance is more important for male students than female students. Average attendance is found more in female students than male student and the female students who attended more class scored above average in the professional examination than the male students (Table I). Studies done previously also found similar results [35-38] but some studies found opposite result than this study [39,40].

To find out the possible reasons of absenteeism, this study revealed that there were several factors related to medical students, teaching faculty, teaching material & strategy and educational environment of the medical colleges (Fig. 4). Several other studies found similar causes of absence of medical students in the class [41-48]. By providing healthy educational environment, regular physical and mental health monitoring, feasible class & examination schedule, proper preparatory and post exam leave, making the

class topic and way of teaching interesting, stronger student-faculty interactions and overall motivation & encouragement of the medical students by the medical facilitators can significantly minimize the absenteeism of medical students. Students should also be properly guided by the teachers to avoid excessive dependence on internet based medical teaching materials, digital handouts and below quality reference books & lecture notes without attending the class [49-54]. Medical teachers should also serve themselves as mentors and wisely direct & look after their students as mentees to engage them more into the class avoiding excessive engagement in personal, familial, social & other extracurricular activities [4,55].

Conclusion:

Significant correlation found in this study between the total class attendance and the professional examination score among the undergraduate medical students. So, for better academic performance of the students there is no better alternative of attending the classes of MBBS course. Also the students motivation & encouragement and maintaining the quality educational environment by medical faculty and administrators to attend the classes will be the key to minimize the reasons related to absenteeism.

References:

1. Riggs JW, Blanco JD. Is there a relation between student lecture attendance and clinical science subject examination score? Obstet Gynecol. 1994; 84 (2): 311-3.

2. Boelen C. The five-star doctor: An asset to health care reform? Available at: http://www.who.int/hrh/en/HRDJ_1_1_02.pdf. [Accessed on April 12, 2017]

3. Boelen C. A new paradigm for medical schools a century after Flexner's report. Bull World Health Organ. 2002; 80 (7): 592-3.

4. Ahmad M, Rahman FN, Shawon MMI, Ali M. Effect of Class Attendance on Medical Student's Academic Performance – An Observational Study. Faridpur Med Coll J. 2017; 12 (2): 58-63.

5. Chilwant KS, Hundekari JC. Effect of class attendance on performance in 2nd year medical students. IOSR J Res Method Educ. 2013; 3 (3): 31-3.

6. Jain V, Agrawal V, Biswas S, Varshney A. Impact of attendance in lectures and formative assessments on students' performance in summative assessment. Natl J Med Dent Res. 2013; 1 (4): 24-8.

7. Persky AM, Kirwin JL, Marasco CJ, May DB, Skomo ML, Kennedy KB. Classroom attendance: Factors and perceptions of students and faculty in US schools of pharmacy. Curr Pharm Teach Learn. 2014; 6 (1): 1-9.

8. Fjortoft N. Students' motivations for class attendance. Am J Pharm Educ. 2005; 69 (1): Article 15.

9. Westrick SC, Helms KL, McDonough SK, Breland ML. Factors influencing pharmacy students' attendance decisions in large lectures. Am J Pharm Educ. 2009; 73 (5): 83.

10. Launius MH. College student attendance: Attitudes and academic performance. Coll Student J. 1997; 31: 86-92.

11. Varu M, Vegad A, Shah C, Mehta H, Kacha Y. Attendance, attitudes and academic performance: A study on first year MBBS students attending physiology classes. Int J Med Sci Educ. 2016; 3 (1): 31-7.

12. BinSaeed AA, al-Otaibi MS, al-Ziyadi HG, Babsail AMA, Shaik SA. Association between student absenteeism at a medical college and their academic grades. J Int Assoc Med Sci Educ. 2006; 19 (4): 155-9.

13. Yusoff MSB. Association of academic performance and absenteeism among medical students. Educ Med J. 2014; 6 (1): 40-4.

14. Gunn KP. A correlation between attendance and grade in 1st year psychology class. Can Psychol. 1993; 34 (2): 201-2.

15. Lukkarinen A, Koivukangas P, Seppälä T. Relationship between class attendance and student performance. Procedia Soc Behav Sci. 2016; 228: 341-7.

16. Van Blerkom ML. Class attendance in undergraduate course. J Psychol. 1992; 126 (5): 487-94.

17. Daud S, Javaid F. Effect of class attendance of medical students' test performance. Pak J Med Health Sci. 2012; 6 (2): 295-7.

18. Credé M, Roch SG, Kieszczynka UM. Class attendance in college: A meta-analytic review of the relationship of class attendance with grades and student characteristics. Rev Educ Res. 2010; 80 (2): 272-95.

19. Hamdi A. Effects of lecture absenteeism on pharmacology course performance in medical

students. J Int Assoc Med Sci Educ. 2006; 16 (1): 27-30.

20. Dashputra A, Kulkarni M, Chari S, Date A. Medical student's absenteeism in class: Reasons and remedies. J Educ Res Stud. 2015; 3 (1): 24-9.

21. Desalegn AA, Berhan A, Berhan Y. Absenteeism among medical and health science undergraduate students at Hawassa University, Ethiopia. BMC Med Educ. 2014; 14: 81.

22. Rao BT, Valleswary K, Nayak MSDP, Rao NL. 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 Meth Educ. 2016; 6: 11-9.

23. Tripura K, Das R, Saha N. Attitude of medical students towards the reasons of absenteeism in a medical college of Tripura. IOSR J Dent Med Sci. 2015; 14: 110-2.

24. Miah MA, Khan MAW, Talukder MHK, Begum F, Nargis T, Ferdous Khan TF, et al. Reasons of Dropouts and Defaulters of Medical Students in Bangladesh. Bangladesh J Med Educ. 2011; 2 (2): 1-6.

25. Sultana N. Stress and Depression among undergraduate Medical Students of Bangladesh. Bangladesh J Med Educ. 2011; 2 (1): 6-9.

26. Shete JS, Warbhe P, Padmini D. Class absenteeism among female medical students: A study reflecting its association with common menstrual disorder. Int J Rec Sci Res. 2015; 6 (7): 5307-9.

27. Ruiz JG, Mintzer MJ, Lepizig RM. The impact of E-learning in medical education. Acad Med. 2006, 81 (3): 207-12.

28. Fernandes L, Maley M, Cruickshank C. The impact of online lecture recording on learning outcomes in pharmacology. J Int Assoc Med Sci Educ. 2008, 18 (2): 62-70.

29. Glanz K, Fiel SB. Effect of attendance at lectures on medical student performance. J Med Educ. 1984; 59 (6): 516-8.

30. Millis RM, Dyson S, Cannon D. Association of classroom participation and examination performance in a first-year medical school course. Adv Physiol Educ. 2009; 33 (3): 139-43.

31. Flournoy DJ, Hyde RM. The relationship of lecture attendance and course grade for second-year medical students. J Okla State Med Assoc. 1984; 77 (1): 20-2.

32. O'Brien B, Cooke M, Irby DM. Perceptions and attributions of third-year student struggles in clerkships: do students and clerkship directors agree? Acad Med. 2007; 82 (10): 970-8.

33. Dhaliwal U. Absenteeism and under-achievement in final year medical students. Natl Med J India. 2003; 16 (1): 34-7.

34. Sabuj MKH, Shaha C. Class absenteeism in Pediatrics and its impact on performance: An analytical study on undergraduate students of a Medical College Hospital in Dhaka. Bangladesh J Child Health. 2015; 39: 69-72.

35. Massingham P, Herrington T. Does attendance matter? An examination of student attitudes, participation, performance, and attendance. J Univ Teach Learn Pract. 2006; 3 (2): 82–103.

36. Cortright RN, Lujan HL, Cox JH, DiCarlo SE. Does sex (female versus male) influence the impact of class attendance on examination performance? Adv Physiol Educ. 2011; 35 (4): 416-20.

37. Sade RM, Stroud MR. Medical student attendance at lectures: effect on medical school performance. J Med Educ. 1982; 57 (3): 191-2.

38. Eisen DB, Schupp CW, Isseroff RR, Ibrahimi OA, Ledo L, Armstrong AW. Does class attendance matter? Results from a second-year medical school dermatology cohort study. Int J Dermatol. 2015; 54 (7): 807-16.

39. Cohall DH, Skeete D. The impact of an attendance policy on the academic performance of first year medical students taking the fundamental of disease and treatment course. Caribb Teach Schol. 2012; 2 (2): 115-23.

40. Hafeez K, Khan MLZ, Jawaid M, Haroon S. Low attendance in lectures at medical colleges of Karachi – A cross sectional survey. J Postgrad Med Inst. 2014; 28 (2): 161-4.

41. Alghamdi A, Yamani A, Khalil A, Albarkati B, Alrehili O, Salih M. Prevalence, Causes and Impacts of Absenteeism among Medical Students at UQU. Education. 2016; 6 (1): 9-12.

42. Kottasz R. Reasons for student non-attendance at lectures and tutorials: an analysis. Investig Univ Teach Learn. 2005; 2 (2): 5-16.

43. Bati AH, Mandiracioglu A, Orgun F, Govsa F. Why do students miss lectures? A study of lecture attendance amongst students of health science. Nurse Educ Today. 2013; 33 (6): 596-601.

44. Wadesango N, Machingambi S. Causes and structural effects of student absenteeism: a case study of three South African Universities. J Soc Sci. 2011; 26 (2): 89-97.

45. Friedman P, Rodriguez F, McComb J. Why students do and do not attend classes: myths and realities. Coll Teach. 2001; 49 (4): 124–33.

46. Marburger DR. Absenteeism & undergraduate exam performance. J Econ Educ. 2001; 32 (2): 99–109.

47. Devadoss S, Foltz J. Evaluation of factors influencing student class attendance and performance. Am J Agric Econ. 1996; 78 (3): 499-507.

48. Moore R, Jensen M, Hatch J, Duranczyk I, Staats S, Koch L. Showing up: the importance of class attendance for academic success in introductory science courses. Am Biol Teach. 2003; 65 (5): 325–9.

49. Elsasser GN, Hoie E B, Destache C, Monaghan MS. Availability of internet download lecture audio files on class attendance and examination performance. Int J Instruct Technol Distance Learn. 2009; 6 (2): 19–24.

50. Grabe M, Christopherson K. Evaluating the advantages and disadvantages of providing lecture notes: the role of internet technology as a delivery system and research tool. Internet High Educ. 2005; 8 (4): 291-8.

51. Grabe M, Christopherson K. Optional student use of online lecture resources: resource preferences, performance and lecture attendance. J Comput Assist Learn. 2008; 24 (1): 1-10.

52. Grabe M. Voluntary use of online lecture notes: correlates of note use and note use as an alternative to class attendance. Comput Educ. 2005; 44 (4): 409–21.

53. Vandehey MA, Marsh CM, Diekhoff GM. Providing students with instructors' notes: problems with reading, studying and attendance. Teach Psych. 2005; 32 (1): 49-52.

54. Billings-Gagliardi S, Mazor KM. Student decisions about lecture attendance: do electronic course materials matter? Acad Med. 2007; 82 (10): S73-6.

55. Sharmin T, Azim E, Choudhury S, Kamrun S. Reasons of Absenteeism among Undergraduate Medical Students: A Review. Anwer Khan Mod Med Coll J. 2017; 8 (1): 60-6.

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