Could Attendance at Medical School be improved? A Prospective Study of Medical Education at The University of Liverpool: Study of Attendance at a UK Medical School


Abstract

Phenomenon: Attendance at UK medical school teaching sessions is on the decline. This research aimed to explore the reasons for this reduction.

Approach: Attendance was assessed, by way of head counts, at 3rd year students’ lectures, tutorials and problem based learning (PBL) sessions at the University of Liverpool. Reasons for absence were explored using a questionnaire sent via email to the year group.

Findings: Compulsory lectures attained greater attendance than non-compulsory lectures. Access to PowerPoint presentations prior to lectures correlated with a decline in attendance as did long timetable gaps. Lectures held on-campus were poorly attended compared to those held at hospital sites where students undertook clinical placements. Unsupervised PBL sessions, with sign in sheets, achieved excellent attendance however, turnout was poor when monitoring wasn’t present. Similar trends were observed for lecture attendance, indicating that students may be motivated to attend by fear of reprimand. 75 students responded to an online questionnaire exploring reasons for attendance and their responses largely agreed with our findings, however one discrepancy was highlighted. Students reported that access to lecture slides before teaching sessions would not affect attendance, although our evidence showed that when slides were available attendance declined.

Insights: Attendance could be improved if teaching coincided with hospital placements. Sign-in sheets, fewer gaps between sessions and multiple lectures on one day would see a marked increase in attendees. In future, medical
schools should consider these factors to enhance student motivation to attend teaching sessions.

**Keywords:** Medical Education

**Introduction**

Absenteeism in higher education establishments, including medical school, is becoming increasingly common both in the UK and worldwide.\(^1\)\(^{-}\)\(^9\) This is worrying due to the strong correlation between absenteeism and poor exam performance that has been demonstrated by a number of studies, across a variety of locations and subjects.\(^5\),\(^7\),\(^8\),\(^10\)\(^{-}\)\(^28\)

A lack of interest in subject matter, an un-favourable learning environment, excessive socialisation between students, perceived quality of teaching and ineffective lecture scheduling are cited as core reasons for absenteeism.\(^29\)\(^{-}\)\(^33\) Furthermore, improved access to online materials is an increasingly common reason for students’ non-attendance.\(^1\),\(^6\),\(^29\),\(^34\)\(^{-}\)\(^40\)

It must be recognised that UK medical schools have large annual cohorts and it is therefore insurmountable to cater to individual learning style preferences within these sizeable groups. However, absenteeism amongst medical students is worrying for providers of medical education given their accountability for the overall professional performance of graduates and the increasing demands of financing such courses.\(^41\),\(^42\)

Anecdotally, we have noted growing apathy amongst medical students towards attendance; with many placing little value on both clinical and classroom-based teaching sessions. The ability to learn effectively from books and online materials, coupled with poor quality teaching and exam pressures are cited by our fellow medical students as reasons for non-attendance. This study aims to evaluate attendance rates of 3\(^{rd}\) year medical students at the University of Liverpool (UoL) and explore their reasons for lack of attendance, with a view to suggesting methods of improving attendance at UK medical schools.

**Methods**

**Data collection**

A prospective audit of attendance at 3\(^{rd}\) year medical education sessions at UoL was carried out over a 4-month period in 2014, immediately preceding end of year summative examinations. All educational sessions throughout this time period were analysed during this time period. The 3rd year cohort were chosen as they rotate through specialty blocks that employ a variety of teaching methods such as lectures, small-group tutorials, and Problem Based Learning (PBL) sessions. Students in this year group were expected to attend lectures and tutorials held both at the University campus and at sites of clinical attachment (primary or secondary care), located varying distances from campus. UoL implements registers to monitor attendance at compulsory teaching sessions. Uniquely, auditing this cohort enabled us to observe patterns of attendance according to session type, timing and location. UoL did not require formal ethical approval for this study.

Head counts were employed across 5 specialty rotations: pharmacology; paediatrics; neurology/neurosurgery and psychiatry; obstetrics and gynaecology; and community medicine/general practice. Attendance data from teaching sessions both on and off the University campus were included in the study.
Questionnaire

A survey was sent to the entire 3rd year student cohort in order to ascertain reasons for attendance or absenteeism. Survey responses were then compared to the audit data. The survey was open for 6 weeks in the period immediately following the attendance data collection. There was no incentive (financial or otherwise) for students to complete the survey.

Data Analysis

Data was compared from different educational sites and, where possible, at different time points across the study period to ascertain if any patterns of attendance could be observed. Mann-Whitney U test was used to compare median attendance rates where appropriate using SPSS v.21.

Results

Head count data was attained from 179 lectures, 54 PBL sessions and 44 tutorial sessions across the 5 speciality rotations (Table 1). Small group tutorials exhibited the highest average attendance, 94.8% (range 44-100%, SD 12.7%, median 100%) of the three session types. Mean attendance at PBL sessions and lectures was 86.3% (range 0-100%, SD 24.5%, median 100%) and 83.8% (range 17-100%, SD 16.8%, median 88.9%) respectively.

Lectures held off-campus at sites of clinical attachment were significantly better attended than those held on campus, 91.7% (range 52-100%, SD 11.1%, median 96.7%) v 73.1% (range 17-100%, SD 17.4%, median 74.6%) (p<0.01). When PowerPoint slides were available prior to the lecture (n=49), mean attendance was significantly reduced in comparison to sessions when the slides were not accessible beforehand (n=130), 69.2% (range 17-97%, SD 19.3%, median 69.2%) v 89.2% (range 52-100%, SD11.8%, median 93.3%) (p<0.01).

Headcount data from the pharmacology rotation demonstrated that multiple, rather than single lectures, scheduled on the same day resulted in increased attendance rates (72.9% (n=40) vs 52.6% (n=9)) (p<0.01). Unfortunately a similar pattern could not be seen in other clinical rotations, though this is likely due to smaller sample sizes. Further data from this rotation showed that rates of attendance fell closer to the exam period (n= 18, 57.3% vs n = 31, 76.0%) (p<0.01).

Compulsory lectures with attendance monitoring resulted in higher levels of attendance than non compulsory lectures (n=130, 89.4% attendance vs n=49, 69.1%) (p<0.01). Furthermore, in supervised PBL sessions with sign in sheets, there was better attendance that student led sessions. (n = 48, 100% median attendance vs n = 6, 0% median attendance) (p<0.01).

Survey Results

A total of 75 students, accounting for 25.4% of the 3rd year medical student cohort, completed the optional survey. Survey responses were largely confirmatory of the conclusions drawn from head count data (Figure 1). The only exception to this was the availability of PowerPoint slides prior to lectures; mean attendance was reduced when slides were available prior to the session. However, survey data suggests that students are not less likely to attend these lectures.
Discussion

The UK is lacking evidence on university attendance due to very little research into the subject, with even less dedicated specifically to seminar sessions, despite this being a popular topic for researchers across the globe for over 20 years.\textsuperscript{5,6,26-28,43-45} Low levels of attendance have been reported repeatedly by these international studies however there remains a limited amount of literature focused on how to tackle this problem.\textsuperscript{46}

Despite the authors' judgments that attendance has declined, UoL's medical school had a median attendance at lectures, tutorials and PBL sessions of over 88%. Questions are continually asked as to what influences students' choices regarding attendance, and the general consensus indicates that they want to gain something from attending, rather than just avoiding disciplinary action. Responses to our survey indicate that students may not attend lectures if they do not perceive them to be beneficial. In addition to this, students expect good quality tutors who encourage interaction while teaching interesting and challenging topics.\textsuperscript{5,6,45,47}

Students prefer smaller group sessions than lectures

Universities employ a variety of teaching styles and with large cohorts it is not possible to satisfy everybody's specific needs. Historically, reports suggested that attendance is better at lectures compared to small group teaching.\textsuperscript{28,47} However, modern publications have suggested that students prefer self-study or smaller teaching sessions, and quote this as a reason for non-attendance at larger group sessions.\textsuperscript{48} In a recent publication, 70% of students preferred small group teaching to larger lectures but still recognised that lectures form a fundamental part of education. Remarkably, less than half of study participants thought attending lectures would improve exam scores.\textsuperscript{49} Moreover, it was recently suggested that there is a significant link between attending seminars and passing exams, however there is not the same correlation between lecture attendance and exam success.\textsuperscript{5}

Our study data found that small group teaching sessions were better attended than lectures (94.8% vs 83.8%), which corroborates with the literature.\textsuperscript{48,49} This suggests that there has been a shift in the preference of modern day students, and that medical schools should tailor their delivery of the curriculum accordingly to incorporate more smaller group teaching sessions.

Students are more likely to attend if they have to travel larger distances

Remarkably, we have demonstrated that lecture attendance on campus was lower than lectures off campus, with a median of 74.6% and 96.7% respectively. We believe that students are more likely to attend lectures given as part of a structured clinical placement than travel to campus for sporadic teaching sessions, as has been demonstrated by the response to questions 3-5 in our survey.

The literature suggests that scheduling one lecture in a day has a negative effect on attendance and there is better attendance at lectures scheduled in the middle of the day when students are already likely to be on campus.\textsuperscript{39,50} Our study data has demonstrated that multiple lectures in one day result in better attendance (median 72.9% and 52.6% for both multiple and single lectures in one day respectively). In addition to this, students agreed via our survey that they were unlikely to attend a single scheduled lecture.

Various studies have found that timetabling factors are a recurring reason for non-attendance, whether this be due to clashes with other teaching sessions or simply due to the time of day they are scheduled.\textsuperscript{39,51} To tackle this problem university faculties should plan student-friendly timetables.\textsuperscript{52} For example, non-attendance was higher on Mondays and Fridays in studies of health science students, but also in the wider student body.\textsuperscript{30,31,50}
Availability of lecture slides prior to lectures results in decreased attendance

Lectures have been shown to have a positive impact on learning and that students will attend lectures if they believe the content will provide additional information to what is already available. If students believe lectures are not a beneficial learning opportunity and that they can access online resources in their own time, then attendance will fall. Online resources have become readily available over the past decade. It is now common to find recordings of lectures or lecture slides online prior to teaching sessions. These twenty-first century advances create questions around the relevance of lectures delivered in the traditional manner.

Our study data indicates that attendance is poor when lecture slides are available to students prior to lectures, compared to when unavailable (median 69.2% and 93.3% respectively, p<0.01). This suggests that students believe they can achieve the same level of knowledge from the resources provided regardless of attendance. This trend has been repeatedly found in the literature. However, a number of publications have suggested that attendance does not fall if resources are made available to students prior to lectures. This trend is reflected in the response to question 2 of our survey.

There are numerous positives to accessing online resources. Students often struggle to make organised, thorough lecture notes for revision. Having a template in the form of pre-released slides could potentially rectify this problem and improve revision techniques. Access to online material also gives students the option of distance learning. Studies have shown that students involved in distance learning do equally as well as students on site. It has also been reported that online resources can improve academic performance. However, a conflicting publication stated that digitally available lectures, as an alternative to students attending lectures, creates no difference in the knowledge students gain.

There are also disadvantages of pre-releasing teaching materials. One is the loss of student-teacher interaction. Evidence suggests that poor attendance has significance with regards to professional development as well as academic performance. Absenteeism causes the student to waive their opportunity to develop relationships with their tutors who have a mentoring role and assist with their professional growth. This loss of professional socialisation is a worry amongst educators within the healthcare profession as interaction helps to identify role models. Hafeez et al stated that the role of the teacher in ensuring understanding and application of the content is still significant and thus encouraging lecture attendance is imperative.

If students are unable to attend a lecture, online notes are an effective way of ensuring they can access any information they missed. However, there is a worry that this may increase temptation to 'skip' lectures and indeed, access to electronic resources means many medical students now choose not to attend teaching sessions, opting to carry out their own learning instead. Studies have shown that students who used notes provided by the lecturer had higher mean exams scores than those who didn’t. Harmon et al found that when students attend the lecture covering the topic in their exam, they are almost 20% more likely to answer correctly when compared to those students who solely study using the online material.

Attendance monitoring improves attendance rates

There is debate as to whether the enforcement of compulsory attendance is a successful method to improve turnout. There is increasing evidence that attendance improves where such policies are employed, though this has not been unanimously reported. We have demonstrated that lecture attendance is better when the faculty records attendance, compared to no documentation of attendance (median = 89.4% and 69.1% respectively, p<0.01). We also have found the same pattern for PBL attendance (median = 100% and 0% respectively, p<0.01).
As aforementioned, a factor influencing attendance may be whether the student anticipates their absence will be noted. Declining numbers of students attending seminars as the year progresses may impel students not to attend, as they witness a lack of consequences for their peers’ who do not attend. This may also provide an explanation as to why attendance is better in small group sessions when compared to lectures, as absence is more likely to be detected where fewer people are expected at the session. However, this was not reflected in our survey where students stated that the use of sign in sheets encouraged their attendance.

**Attendance is worse closer to the exam period**

It has also been highlighted in the literature that attendance is particularly poor around exam periods when revision takes preference over lectures. This is echoed in our attendance data, and our survey where the majority of students (85%) stated that the impending exam period does affect their attendance at lectures. Likewise, a large proportion (57%) of students said they are less likely to attend lectures closer to exams, with 84% of students considering their own revision more useful.

Furthermore, non-attendance at this time may be due to students having more confidence in themselves to learn outside of lectures or simply because they have low energy levels. Westrick et al demonstrated that 45% of students suggested a reason for absence to be tiredness from studying the night before.

When we asked our student cohort if they attended lectures to gain insight into the topic or to learn, the majority (56%) stated it was to gain insight. Nearer to the exam period, it is likely that students already know what topics they should study, and therefore are less likely to attend. Due to this finding it may be worthwhile to structure the monitoring of attendance to coincide with the pattern of the academic year; with stringent monitoring at the beginning of the year to ensure students have a framework to base their learning around and then relax this closer to exams.

**Topic of teaching and the teacher influences attendance**

The qualities of teachers, their practices and the relationship they have with their students appears to play a role in non-attendance to lectures. More specifically, disorganized lecturers who do not engage with students and are perceived as boring, will see lower numbers of attendance. In fact, poor lecture content is a frequently cited factor for non-attendance with one study reporting that 50% of their participants agreed with this concept. In addition, one study showed that 80% of medical students chose to attend specific lectures dependent on the lecture topic itself, while another found that 69% of students cite interest in the topic as a key reason for attendance. Interestingly our survey results demonstrated that a vast majority (93%) of students consider the lecture topic or title to influence their decision to attend.

Therefore, it is imperative that tutors recognise their role in encouraging attendance and carefully consider the title given to lectures. Those who communicate well with students and provide well-organized lectures are far more likely to see larger numbers attending their sessions. It has been proven repeatedly that matching teaching methods with students learning styles will ensure they gain the maximum benefit from the teaching session.

**Limitations**

Limitations to the study include that participants were comprised of only one year group at a single UK medical school, limiting generalisability of the findings. Additionally, the student response rate to the online survey was
relatively low (25.4%), and therefore, may not be representative of the year group. The response rate might have been greater had the students been given an incentive to participate. Attendance monitoring was carried out over 4 months; had this been extended to encompass the entire academic year this may have provided more robust evidence. Finally, we have not explored further reasons in this study for non-attendance as discussed in existing evidence, such as self-motivation, time management, events in student's personal life and the social use of drugs and alcohol.

Conclusion

We have demonstrated that small ward based learning opportunities are persistently well attended, even when approaching exam periods. Furthermore, our evidence shows that the use of sign-in sheets markedly improves attendance, and that students are more inclined to attend multiple teaching sessions with few gaps held on one day, as opposed to single lectures spread over a number of days. On occasions when lecture material was made available to students prior to the session, there was a distinct decrease in attendance. Although it was beyond the remits of our study to monitor attendance throughout the year, we discern from available literature that there may be benefit in increasing the number of lectures at the start of the academic year, allowing students more personal study time closer to exams. In future, medical schools should take these factors into consideration to enhance student motivation to attend these learning opportunities.

Take Home Messages

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Appendices

Table 1. Number of sessions for which headcount data was obtained by clinical rotation

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Figure 1 – Reasons for absenteeism survey responses from medical student participants
## Declaration of Interest

The author has declared that there are no conflicts of interest.