Medical School Attendance is Significantly Lower in Preclinical Students Who are Experiencing Psychological Distress

Ronald Damant[1], Liam Rourke[2], Beverly Wilson[3], Melanie Lewis[4], Dennise Schutz[5], Dwight Harley[6], Kent Stobart[7]

Corresponding author: Dr Ronald W Damant rdamant@ualberta.ca
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Abstract

Attendance at scheduled learning activities enhances medical students’ education and demonstrates professionalism. This study explores the relationship between attendance and psychological distress in a cohort of medical learners.

We recorded the attendance of pre-clinical students at compulsory activities over two years. Counselors in our learner support program were asked to anonymously indicate whether individual learners had sought assistance for psychological distress. The study protocol was approved by the University of Alberta’s Research Ethics and Privacy Offices.

One hundred and seventy students recorded 965 absences. The mean (SD) of absences per student was 5.68 (5.56). Twenty one (12%) students had significant psychological distress. There was a negative correlation (r = - 0.33) between absences and academic performance. The correlation between absences and psychological distress was moderate (r = 0.63). The mean (SD) number of absences among students without distress was 4.37 (3.46). Among those with distress, the mean (SD) number of absences was 14.95 (8.32). The difference was significant (p < 0.0001) with an effect size of Cohen’s d = 3.06.

In the culture of medical school, absences are often interpreted as a lack of moral fitness for the profession, and attendance policies are designed accordingly. However, absenteeism may be symptomatic of psychological distress. If so, institutional regulations could be modified to address this more effectively.

Keywords: Attendance, Psychological Distress, Absenteeism, Medical School
Introduction

Attending scheduled educational activities is a straightforward way for medical students to acquire the knowledge, skills, and attitudes required of a physician. Current theories of learning underscore the importance of regular and repeated encounters with the subject of interest and repeated practice of skills (Cepeda et al. 2006). As well, through attendance, students are exposed to concepts not necessarily available in notes, published course materials, textbooks, or online resources. Indeed, studies consistently show a positive correlation between attendance and academic achievement across a variety of educational circumstances (Credé et al. 2010).

Consistent attendance is also a way for medical students to practice and demonstrate professionalism (Ludmerer 1999; Baernstein et al. 2009; McLachlan et al. 2009). This assertion has intensified as podcasts and other technologies diffuse through medical education, affording learners the opportunity to study at their leisure (Preston et al. 2010). For many clinical educators, attendance – even though the schedule may be challenging, the teacher less than charismatic, or alternative ways to access to the information available – signals a commitment to medical practice, a potentially demanding endeavor not necessarily accomplished at one's convenience. For these reasons, many medical schools have traditionally mandated attendance, with potential penalties for students who do not "bother" to attend.

If, on the other hand, medical school admissions processes are effective in selecting for individuals with the necessary aptitude, insight, motivation, and commitment to pursue a career in medicine (Dyrbye et al. 2006), lack of regular attendance should be thought of as out-of-character for those granted the privilege of attending. Could it be that other legitimate issues underlie absenteeism, including the presence of psychosocial distress among medical learners?

Psychological distress has been shown to be common among medical learners (Tyssen et al. 2001; Dahlin et al. 2005). U.S. and Canadian medical students have higher levels of psychosocial distress relative to both the general population and age-matched peers. In a study involving seven different medical schools, 80 percent of students had at least one form of distress, with 50 percent reporting three or more (Dyrbye et al. 2011). Studies of medical students from all regions of the world have identified similarly high levels of distress (Guthrie et al. 1995; Moffat et al. 2004; Aktekin et al. 2001).

When it occurs, psychological distress among medical learners may be experienced as burnout, depression, low mental quality of life, low physical quality of life, fatigue, stress, or any combination of these conditions (Dyrbye et al. 2011). It can lead to serious adverse consequences, including impaired cognition and memory (Abdulghani et al. 2011), impairment of sleep (Pagnin et al. 2014), alcohol and substance abuse (Tyssen et al. 1998; Newbury-Birch et al. 2001), diminished academic performance, academic dishonesty, lapses of professionalism, increased risk of medical error, decreased empathy (Baldwin et al. 1996; Dans et al. 1996; Rennie S et al. 2003), thoughts of dropping out despite being in good academic standing, depression, and even suicidal ideations (Dyrbye et al. 2011).

Absenteeism may too be related to psychological distress among learners. Regular attendance at cognitively and/or emotionally demanding educational activities may be too much to expect of someone in the throes of significant psychological upheaval. Surprisingly, the relationship between psychological distress and attendance has not been well studied in medical education, or even the larger context of post-secondary learning.

The purpose of this study, therefore, is to begin an empirical examination of the relationship between absenteeism and psychological distress in undergraduate medical students.
Methods

Student attendance policy in the Undergraduate Medical Education Program at the University of Alberta underwent a series of revisions between 2007 and 2009. The Medical Doctor Curriculum Committee provided governing oversight of this process. Their goal was to develop a policy that balanced two competing philosophical approaches to student participation in medical school – one, a laissez-faire style that respects student autonomy while trusting in the motivation of adult learners to optimize all curricular opportunities, and a second, more paternalistic tactic that makes attendance compulsory, and imposes sanctions if students are unwilling to attend.

The revised attendance policy consisted of the following components: students entering medical school were to be made aware of attendance policy and procedures through lectures, a student handbook, and the program’s website; a pre-specified subset of the preclinical curriculum, consisting of 10 – 20% of sessions, and distributed throughout the first two years of the program, were designated compulsory; compulsory sessions consisted of labs, small group sessions, workshops, seminars, simulations, demonstrations, or any curricular activity that involved a real or simulated patient; lectures were not compulsory; students were reminded of compulsory activities by means of a computer-based scheduling and notification system; students were required to use a sign-in registry to document their presence at compulsory sessions.

The Preclinical Curriculum Committee (working under the MD Curriculum Committee) developed a program evaluation project to better understand the impact of the revised attendance policy.

Research Design: This is a descriptive comparative study. We conducted a systematic analysis of attendance, academic performance, and psychological distress using observational data obtained from a cohort of 170 preclinical medical students.

Ethical treatment of human participants: The study protocol was also reviewed and approved by the University of Alberta’s Research Ethics and Privacy Offices.

Data Collection: Data was collected over an 18 month interval, approximately 5 years ago. The cohort involved has since graduated from medical school. Student attendance during compulsory sessions was recorded prospectively by means of a sign-in registry. Overall preclinical Grade Point Average (year one and two combined) was used as a measure of academic performance. Medical learners at the University of Alberta have access to support service through the Learner Advocacy and Wellness (LAW) Program. At the end of the study period, personnel from the LAW Program were asked the following question for each student in the cohort: yes or no - this student has experienced significant psychosocial distress during their first two years in medical school?

Student anonymity was maintained by means of a data coding system. Each medical student was assigned a randomly generated study identification number. This number was used to link all other study parameters. All student-specific identifiers were excluded from the data files used for subsequent analysis. The process of making the data anonymous was overseen by an individual not otherwise affiliated with the project and with no direct influence on student grades.

Data analysis: From this data, we calculated descriptive statistics. Pearson’s r was used to determine linear dependence between variables. T-tests for independent samples were then used to identify statistically significant differences in means. Cohen’s d was used to estimate the effect size. All data was analyzed with the SPSS stats package.
Results

Attendance: A total of 170 students accrued 965 absences from compulsory sessions over the study period of 18 months. The number of absences per student ranged from 0 to 43. Eleven percent (19/170) of students attended all compulsory sessions. Eighty nine percent (151/170) missed at least one session (see figure 1). The mean (SD) number of absences per student was 5.68 (5.56).

Psychological Distress: Twenty-one of the 170 students in the cohort (12%) were identified by learner support services as having experienced psychological distress during the study period. This worked out to an incidence of 8.2 distressed learners per 100 students annually.

Academic Performance and Psychological Distress: There was a weak, negative correlation between the number of missed sessions and preclinical GPA (r = - 0.33). The mean (SD) overall preclinical GPA was 82.3 (4.2) percent. Among students experiencing distress, the mean (SD) GPA was 79.6 (5.4) percent. Those not experiencing distress had a mean (SD) GPA of 82.6 (3.9) percent. A t-test for independent samples indicated the difference in GPA between distressed and non-distressed learners was significant (p < 0.023).

Attendance and Psychological Distress: There was a moderate, positive correlation between the presence of psychosocial distress and the number of missed sessions (r = 0.63; see figure 2). Students not experiencing psychological distress had a mean (SD) of 4.37 (3.46) absences during the study period. Those who were distressed had a mean 14.95 (8.32) absences. A t-test for independent samples found the difference to be significant (p < 0.0001) with an effect size of Cohen’s d = 3.06.

Discussion

This study provides insight into the relationship between attendance and psychological distress in preclinical medical students. Most importantly, we found that absences were substantially more frequent among students characterized as having suffered from psychological distress during the study period. Overall, absenteeism was relatively low, but among those who missed several compulsory scheduled events, levels of distress were sufficiently high to seek counseling.

Psychological distress among medical learners has been studied by several investigators. Their research has been primarily descriptive. The most common conclusion is that distress, in its various forms, is widespread (Dyrbye et al. 2006).

Other studies have explored the antecedents of psychological distress. Some of the potential precursors include discomfort with uncertainty and ambiguity (Lally et al. 2014), previous training (Ellaway et al. 2014), gender (van Vendeloo et al. 2014), exposure to death and dying (Curtis et al. 2014), personality traits (Allroggen 2014), and a gap between learner expectations and the realities of clinical practice (Benbassat et al. 2011).

As noted in the introduction, other work has provided insight into the potential impact of psychological distress on learners. Few studies, however, have explored the relationship between psychological distress and attendance.

Most existing research has focused on attendance during non-compulsory learning activities, especially lectures, and has identified a number of factors such as perceived value of the session, teaching style of the lecturer, and dislike for lecture-based learning that influence attendance behavior (Desalegn et al. 2014; Mattick et al. 2007). Other
reports have focused on the impact of E-learning and technology on student participation in the curriculum (Cardall et al. 2008; Zazulia et al. 2014).

One large meta-analysis documented a moderate correlation ($r = 0.41$) between attendance and academic performance (Credé et al. 2010). Our finding of a negative correlation between number of missed sessions and GPA is consistent with this report.

Another study, conducted at a medical school in India, recorded the occurrence of stressful events during training (e.g., financial difficulties, death of a friend). They too made note of the association between attendance and academic performance, but did not describe a relationship between stress and attendance (Kumar et al. 2014).

Our study has several specific considerations and limitations. Attendance at compulsory educational activities and course grades were recorded prospectively. As such, these parameters are reasonable representations of student participation and performance within the curriculum. However, attendance during non-compulsory activities such as lectures was not monitored. By design, only a fraction of scheduled activities (those that could not be easily reproduced outside the curriculum) were deemed compulsory. In addition, the activities in which attendance was tracked made use of more engaging educational strategies and, as such, likely selected for increased student participation. Inferences regarding attendance behavior in the curriculum as a whole must, therefore, be made with caution.

The manner in which we measured psychological distress is also subject to a number of limitations. Ideally, previously validated instruments (e.g., the Maslach Burnout Inventory, the Perceived Stress Scale, the 12-item General Health Questionnaire) would have been administered prospectively across the entire cohort to characterize and quantify the phenomenon. This approach would have allowed us to compare our findings to population norms and the work of other researchers. Unfortunately, because categorization of student distress was done as part of a program evaluation initiative at the end of the study period, we were unable to administer the more sophisticated instruments in a prospective fashion.

Several authors have previously observed that psychologically distressed students are often hesitant to seek counseling (Chang et al. 2013). If this was the case, the reported number of distressed students in our cohort is likely an underestimate.

Our interest in the relationship between attendance and psychological distress originated from a mandate to create a more effective and fair attendance policy. Available evidence regarding the impact of various attendance policies is thin. In the medical education literature, attendance often appears as an outcome in evaluative studies, and is used to justify and validate the redesign of an educational activity. At other times, attendance appears in essays lamenting student professionalism in the age of e-learning.

One review of three small studies of non-medical university students found a small correlation between mandatory attendance and grades, and noted the relationship was restricted to at-risk students (Abdulghani et al. 2014). The authors conceded that policy rationales remain philosophical rather than evidential, an assertion backed by other researchers as well (Credé et al., 2010; Cohall et al. 2012).

Absenteeism among medical students is a complex phenomenon, likely of multi-factorial origin. Observations from our study suggest, provisionally, that psychosocial distress among learners may be one of the contribution conditions. This challenges the idea that non-attending students are uniformly unprofessional, lazy, or rebellious. As a consequence, addressing absenteeism with a blanket policy of rigidity and punishment may exacerbate and not help the problem.
Rather than simply framing attendance policies as coercion to attend, this study supports the need for a more sophisticated model of attendance behavior among adult learners. Declining attendance has been described as one of several potential signs of a "learner in difficulty" (Evans et al. 2010). If so, perhaps attendance data could be used for early identification, characterization, and intervention (Steinert et al. 2013).

Clearly, more research is required. If the results of this study are reproducible among other learners and in other programs, it could open the door to prospective, systematic studies of absenteeism, the development of more up-to-date models of attendance behavior in adult learners, and, perhaps, the use of attendance data to screen for at-risk students. Ultimately, this could lead to the development of more evidence-based attendance policy.

Illustrations
Figure 1: Frequency of Students vs. Number of Absences

Number of Students

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42

Absences
Take Home Messages

- Reduced student attendance in medical school and other post-secondary education programs has been recognized as a problem globally
- Increased attendance is associated with better academic performance
- Psychological distress is common in medical learners
- Reduced attendance is associated with psychological distress among medical students
- This observation could be used to inform the development of more effective student attendance policy and practices
Notes On Contributors

Dr. Ronald Damant, MD FRCPC, is an Associate Professor in the Department of Medicine (Pulmonary), Faculty of Medicine and Dentistry, University of Alberta.

Dr. Liam Rourke, PhD, is an Associate Professor in the Department of Medicine, Faculty of Medicine and Dentistry, University of Alberta.

Dr. Beverly Wilson, MD FRCPC, is a Clinical Professor in the Department of Pediatrics (Hem/Onc) and Assistant Dean, Learner Advocacy and Wellness, Faculty of Medicine and Dentistry, University of Alberta.

Dr. Melanie Lewis, MD FRCPC, is an Associate Professor in the Department of Pediatrics (General and Community Pediatrics) and Associate Dean, Learner Advocacy and Wellness, Faculty of Medicine and Dentistry, University of Alberta.

Ms. Dennise Schutz worked as Team Lead, Preclincial Undergraduate Medical Education, Faculty of Medicine and Dentistry, University of Alberta.

Dr. Dwight Harley, PhD, is Director of Assessment and Evaluation, Faculty of Medicine and Dentistry, University of Alberta.

Dr. Kent Stobart, MD FRCPC, is Professor of Pediatrics (Hem/Onc) and Vice Dean Education, College of Medicine, University of Saskatchewan.

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Appendices

Declaration of Interest

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