Cognitive Enhancement Drug Use Among Medical Students and Concerns About Medical Student Well-Being

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J Gen Intern Med 28(8):984–5

DOI: 10.1007/s11606-012-2302-3

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The well-being of medical students has potentially important consequences for students' own professional and personal development, as well as for the patients for whom they will care throughout their careers. Our society invests a great deal in medical education, and it demands much from students in return. Medical educators remain concerned about both external and internal forces that affect students' learning and development in ways that we are just beginning to understand. We wonder whether the country will have the physician work force it needs as students face ever increasing debt burdens, and we struggle to understand the effects that debt has on career choices.¹ Once students enter medical school, we become concerned about the pressures that they face and the impact of these pressures on their mental health and on their ability to function optimally. Surveys of medical students have shown high levels of depression, anxiety and substance abuse.² Recent studies have demonstrated high rates of burnout and the negative effects of burnout on students' professionalism and altruism.³ Much attention has been focused on the mistreatment of medical students by individuals engaged in their training and by others during the learning process, as studies have shown that mistreatment can lead to deleterious consequences that include depression, substance abuse and leaving medicine entirely.⁴

Despite the fact that learning medicine remains difficult and requires sacrifice to succeed, many extremely bright, dedicated and talented young people choose careers in medicine. In recognition of the highly stressful nature of medical training,⁵ a number of efforts to reduce this stress have taken shape in recent years. Most notable among them have been the series of restrictions in duty hours for both residents and medical students, coupled with limits in the number of patients assigned to trainees. The intent was to promote patient safety and learning over the fulfillment of service duties. Less publicized has been a trend towards pass/fail grading in medical schools, intended to promote deeper learning while reducing the stresses that grading can have on students.

The students we choose to matriculate into our medical schools bring impressive records of achievement. They have succeeded scholastically in extremely competitive institutions. However, to do so, some have witnessed others or personally taken shortcuts to success. In athletics, for example, the shortcut has generally been to take some version of anabolic steroids. In academics, the equivalent has become the use of amphetamines. Neither behavior is new, since students were using "roids and speed" in the 1970s. Nor is the concept of sacrificing long-term for short-term gains novel. Athletes ruin their health to gain a single good season, and students risk long-term effects for higher examination scores. For some time, educators have realized the extent to which students use and misuse psychostimulant drugs in high school and college. Medical students reflect the societal pool from which they come.

In this issue of the *Journal of General Internal Medicine*, Emanuel and colleagues⁶ take a much needed step toward our understanding of psychostimulant drug use among medical students and the potential implications on their well-being. The authors used a well-designed, anonymous survey and achieved reasonable response rate among students of four medical schools in Chicago. Although these schools may differ in some ways from schools in other locales, the risks of other students taking these drugs are probably not much different. The finding that about 20% of the students had used psychostimulants at some point in their life and that about 10% had used them in medical school is not unexpected. Nor will most be surprised to learn that psychostimulant use is associated with other drug use, or that students use the drugs to enhance studying.

Readers and medical educators could take the optimistic view that 90% medical students do not use psychostimulants and move on. However, some of this study's findings are quite alarming, and have implications that go beyond simple tallies of use. The mean frequency of use was 10–12 times over the prior 30 days. Of students using psychostimulants, one in five had used them daily, implying habituation, and over half had used on multiple occasions in the prior month. About two-thirds of students using psychostimulants endorsed nonmedical usage, and about one-fourth had "given or sold" prescribed medications. That this group will have unrestricted privileges to prescribe in the near future should be cause for reflection. Few surveyed students perceived that

their own use of psychostimulants would increase their prescribing for patients. However, that denial sounds suspiciously like the inaccurate belief that accepting gifts from pharmaceutical companies will not influence prescribing behavior.⁷ Finally, a third of users felt they would continue personal use of psychostimulants, with nearly as many unsure whether they would do so. Excluding legitimate use, we must wonder why. Is this usage indicative of addiction or is this a new normal? As they move forward in their careers, these students are unlikely to find diminished demands and pressures. What will happen with stresses of residencies, practice, recertification and career advancement? What kind of role models will these students become when they are residents or attending physicians?

It was encouraging to see that most students thought it unacceptable to boost academic performance with psychostimulants. The finding that the use of these drugs is more common among men and students born in the United States is intriguing, and probably deserves further study. Use seemed to increase throughout the years of medical school. Why does it increase through years? Do these drugs impart any advantage in clerkships, or are we seeing an accumulation of stressors? The finding of higher use in schools with class ranks would both support that premise and argue for decreased emphasis on grades.

The results of the study by Emanuel and colleagues raise legitimate concerns, and if generalizable, merit discussion about responses. An easy solution might be to initiate mandatory, regular drug testing of medical students. Precedents have already been set in other work sites, and with mandatory background checks of medical students. Such an approach would probably be met with resistance, the stigmatizing of legitimate use of psychostimulants for learning disorders, attempts to circumvent testing, and further erosion of students' sense of professionalism. A more reasonable approach might be to reduce the perceived gain from using these drugs for cognitive enhancement. We probably cannot make admission to medical school or residency programs less competitive. However, since amphetamines enhance short-term recall rather than long-term retention, we can encourage a number of curriculum reforms already underway that emphasize group collaborations, clinical reasoning and self-directed learning. Both curriculum initiatives and assessment strategies should emphasize elaborated learning over the superficial learning that might be enhanced by drug use.

Medical educators need to focus on balancing learning with the wellness of trainees. A recent study noted that medical students' quality of life was worse than that of the

general population.⁸ We can scarcely wonder why students choose career specialties based on the perceived lifestyle associated with the specialties.⁹ We need to help medical students put their short-term and long-term objectives into perspective. There should be a desire for career-life balance, and a concern for trainees' own health as well as the health of others. Descriptions of formal wellness curricula have been published and should be studied for their effectiveness.¹⁰ Too much is at stake for our patients and our learners to let warning signals, such as those demonstrated by the study from Emanuel and colleagues,⁶ go unheeded.

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