LETTERS

To the Editor: I appreciate the significant findings of the August 2015 article, "Sleep duration and academic performance among student pharmacists."¹ One of the limitations of the study was measuring sleep quality. I have two suggestions for survey tools that may be useful in future sleep habit studies.

The Pittsburgh Sleep Quality Index (PSQI) is a validated survey that can be used to determine sleep quality of students, while allowing them to remain anonymous. This survey assesses subjective sleep quality, including sleep quantity and disturbances over the previous month.² This test was used in a study of first-year through third-year pharmacy students and found that students with lower grade point averages (GPAs) had high scores (indicating poor sleep quality) on all 7 components of the PSQI, in comparison with intermediate and higher GPA earners.³

Additionally, Lima et al used the PSQI to determine changes in sleep patterns of medical students assigned to either early or late school schedules. They found a significant improvement in sleep quality among students with the later course schedule.⁴ Sleep deprivation is increasingly prevalent among health care professions students. The PSQI may be an excellent data-gathering tool to help restructure curricula to prevent poor sleep habits.

Two studies, one of medical students from the University of Tartu,⁵ and one of female pharmacy students from the Banasthali University,⁶ used a modified version of the prevalidated Questionnaire on Sleep and Daytime Habits (QSDH). Veldi et al included additional questions related to parasomnias, academic progress, lifestyle, sleep, and daytime habits over an average week. Jain et al modified their survey to determine the effect of sleep habits on sleep quality and the effects of a curriculum on their students' sleep.

Surani et al used both the PSQI and the Epworth Sleepiness Scale (ESS) to assess sleep quality in medical students from Pakistan.⁷ The ESS is another validated survey that subjectively measures daytime sleepiness.⁸ Taher et al used the ESS in their study of pharmacy students from Tripoli and found a large number of students had excessive daytime sleepiness, which was not affected by the number of day-time naps.⁹ It would be interesting to see if similar findings are seen in pharmacy students in the United States, and if there is a relationship between

daytime sleepiness and academic performance. Additional validated survey tools include the Sleep Quality Questionnaire (SQQ), the Medical Outcomes Study (MOS) Sleep Scale, and the Fatigue Severity Scale (FSS).¹⁰

All of these survey tools may be appropriate for sleep quality analysis. Sleep quality, as well as quantity, can have a profound effect on performance, both in academics and clinical care settings. Drawing relationships between academic performance and sleep quality may broaden our understanding of the implications of course work on sleep habits and help formulate creative interventions for students at all professional levels.

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