10-Minute Neuroanatomy: An Innovative Resource for Addressing Neurophobia Among Medical Students

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Background: Neurophobia, defined as fear of neural sciences and clinical neurology, is a barrier to medical education. Mitigating this sentiment among medical students and early trainees is essential to training clinicians in neurological care, creating a deeper understanding of neurologic disorders, and motivating students to consider Neurology as a clinical specialty. We created an interactive EBook called "10 Minute Neuroanatomy" designed to simplify neuroanatomical concepts and frame them in a user-friendly, clinically applicable modality for students.

Aim: We aim to determine whether use of the "10 Minute Neuroanatomy" EBook helps diminish neurophobia among third- and fourth-year medical students completing their core Neurology clerkship at the Johns Hopkins School of Medicine.

Methods: From 2018 to 2019, twelve medical student cohorts were administered a baseline survey assessing their level of neurophobia before starting a 4-week clinical Neurology clerkship. Survey questions were used to assess their perceived neurological knowledge, difficulty with neurologic concepts, and preference for Neurology as a specialty. After completion of the clerkship, they were administered the same survey with additional questions about their use of the EBook. Pre- and post-survey changes in neurophobia were assessed using paired t-tests and F-statistics.

Results: Students who used the EBook were significantly more likely to perceive neuroanatomy as less difficult after completing the clerkship ($p<0.01$), and students who utilized the EBook reported a 1.5-fold perceived increase in confidence at their ability to localize a neurologic lesion. All medical students who utilized the EBook reported that it had improved their competency in Neurology. Preliminary survey data showed a positive association between EBook use and preference for Neurology as a medical specialty.

Conclusion: In our cohort of medical students rotating on the Neurology clerkship, use of an interactive neuroanatomy EBook was identified as an effective tool to increase students' perceived self-efficacy in understanding neuroanatomy, as well as their interest in pursuing Neurology as a clinical specialty. We hope to expand the current study to other institutions and training programs to assess the tool's generalizability and to identify whether it can also be effectively used for residents and students enrolled in other programs.