ABSTRACT

**Purpose:** To determine the incidence of impostor syndrome (IS) and burnout in United States medical students, to recognize demographic differences in those experiencing IS, and to examine implications for otolaryngology.

**Methods:** An anonymous survey - including demographic data, an IS screening questionnaire, the Maslach Burnout Inventory, and a modified Kolb learning style inventory - was published online and sent to 726 medical students at two medical schools. Main outcome measures included level of burnout, presence or absence of impostor syndrome, and learning style. Subgroup comparisons were performed using Chi-Squared tests or Fisher Exact Tests, as appropriate.

**Results:** There was a 19% (138 of 726) response rate. Female gender was significantly associated with an increased incidence of IS (p=0.004), more than double the incidence of male counterparts (49.4% versus 23.7%). IS was significantly associated with the burnout components of exhaustion (p=0.049), cynicism (p=0.004), emotional exhaustion (p=0.018), and depersonalization (p=0.007). Students in the fourth year of medical school exhibited a significant increase in IS (p=0.015). Learning style was not correlated with impostor syndrome or burnout.

**Conclusions:** Almost a quarter of male and nearly half of female U.S. medical students surveyed experience IS. Burnout indices were found to be significantly associated with IS. Given the high psychological morbidity of these conditions, this association cannot be ignored. These data suggest that IS is common and must be acknowledged and addressed to optimize the medical learning environment. This may be particularly true in surgical specialties where a rigorous and intimidating learning environment has historically been cultivated.

INTRODUCTION

The emotional and the psychological health of physicians has been receiving an increasing amount of attention in recent years. Specifically, burnout and an entity known as Impostor Syndrome (IS) have recently come to the forefront.

**DISCUSSION**

Burnout is a known problem throughout all levels of medical education. Rates of burnout have been reported as high as 76% in residents and 57% in medical students.

IS has similarly been identified in medical professionals and students and is a predictor of general psychological distress. We found women were two fold more likely to suffer from IS than men. IS has a significant associated with burnout, specifically, exhaustion, cynicism, emotional exhaustion, and depersonalization.

These findings hold significance for medical education for several reasons.

- The beginning stages of burnout are known to begin in medical school
- Women tend to manage their IS by working harder; men tend to avoid areas in which they feel vulnerable (K, J 2006).
- Higher rates of IS have been linked to greater levels of depression and anxiety
- Burnout and low mental quality of life are independent risk factors for suicidal ideation

CONCLUSIONS

Almost a quarter of male and nearly half of female U.S. medical students surveyed experience IS. Burnout indices were found to be significantly associated with IS.

Given the high psychological morbidity of these conditions, this association cannot be ignored.

IS and burnout are common and must be acknowledged and addressed to optimize the medical learning environment.

Given different coping mechanisms and levels of IS and burnout in men and women, different approaches may be needed when instructing men versus women.

In order to continue to recruit and retain “the best and the brightest,” and improve overall wellbeing, a shift away from an intimidating, potentially shame-based, learning environment is needed.

REFERENCES