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Burnout is Associated With Emotional Intelligence but not Traditional Job Performance Measurements in Surgical Residents

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OBJECTIVE: To evaluate whether burnout was associated with emotional intelligence and job performance in surgical residents.

DESIGN: General surgery residents at a single institution were surveyed using the Maslach Burnout Inventory (MBI) and trait EI questionnaire (TEIQ-SF). Burnout was defined as scoring in 2 of the 3 following domains; Emotional Exhaustion (high), Depersonalization (high), and Personal Accomplishment (low). Job performance was evaluated using faculty evaluations of clinical competency-based surgical milestones and standardized test scores including the American Board of Surgery In-Training Exam (ABSITE) and the United States Medical Licensing Examination (USMLE) Step 3. USMLE Step 1 and USMLE Step 2, which were taken prior to residency training, were included to examine possible associations of burnout with USMLE examinations. Statistical comparison was made using Pearson correlation and simple linear regression adjusting for PGY level.

SETTING: This study was conducted at the University of Alabama at Birmingham (UAB) general surgery residency program.

PARTICIPANTS: All current and incoming general surgery residents at UAB were invited to participate in this study.

RESULTS: Forty residents participated in the survey (response rate 77%). Ten residents, evenly distributed from incoming residents to PGY-4, had burnout (25%). Mean global EI was lower in residents with burnout versus those without burnout (3.71 vs 3.9, $p = 0.02$). Of the 4 facets of EI, mean self-control values were lower in residents with burnout versus those without burnout (3.3 vs 4.06, $p < 0.01$). Each component of burnout was associated with global EI, with the strongest correlation being with personal accomplishment ($r = 0.64$; $p < 0.01$). Residents with burnout did not have significantly different mean scores for USMLE Step 1 (229 vs 237, $p = 0.12$), Step 2 (248 vs 251, $p = 0.56$), Step 3 (223 vs 222, $p = 0.97$), or ABSITE percentile (44.6 vs 58, $p = 0.33$) compared to residents without burnout. Personal accomplishment was associated with ABSITE percentile scores ($r = 0.35$; $p = 0.049$). None of the 16 surgical milestone scores were significantly associated with burnout.

CONCLUSIONS: Burnout is present in surgery residents and associated with emotional intelligence. There was no association of burnout with USMLE scores, ABSITE percentile, or surgical milestones. Traditional methods of assessing resident performance may not be capturing burnout and strategies to reduce burnout should consider targeting emotional intelligence. (J Surg Ed ▮:▮▮▮-▮▮▮. © 2018 Published by Elsevier Inc on behalf of the Association of Program Directors in Surgery)

KEY WORDS: emotional intelligence, burnout, surgical residency, clinical competency, ABSITE

COMPETENCIES: Practice-Based Learning and Improvement, Medical Knowledge, Interpersonal and Communication Skills

INTRODUCTION

Burnout has been linked to increased rates of major medical errors[1] and suicidal thoughts among physicians.[2] Compared

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to the general population, physicians have been shown to be at an increased risk of developing symptoms of burnout, with 45% of physicians reporting at least one symptom of burnout.[3] That number is significantly higher among general surgery residents with up to 69% of residents experiencing at least one symptom of burnout.[4] Concerningly, the percentage of physicians reporting burnout is increasing in all specialties[5] and an urgent need exists to better understand and reduce physician burnout.

Surgical residency is a long and challenging training program with high attrition rates.[6] Burnout is not assessed under traditional frameworks. Resident assessment typically includes the American Board of Surgery In-Training Examination (ABSITE) and faculty evaluations based on 16 surgical milestones. The surgical milestones are founded on the 6 core competencies defined by the American Council for Graduate Medical Education (ACGME). These competencies provide a foundation for the assessment of the resident's surgical development by offering subjective evaluations for residents' interpersonal and communication skills, medical knowledge, practice-based learning and improvement, patient care, professionalism, and systems-based practice.[7] An evaluation method that specifically assesses resident burnout does not exist, and it is unclear whether current measures directly or indirectly capture burnout.

Emotional intelligence (EI) is the awareness of one's own emotions and the ability to control and express these emotions to guide interpersonal relationships.[8] Higher levels of EI have been linked to better job satisfaction, work performance, and client satisfaction in several industries.[9-11] In the medical profession, high EI has also been linked to lower levels of burnout in certain residency fields,[12,13] suggesting that EI may have a significant impact on a resident's ability to manage the stressors of training. The stressors involved with surgical training, however, are unique and distinguish it from other specialties. Few studies have examined the association between EI and burnout among surgical residents.

To better understand the role of burnout in surgical training, we examined the relationship between burnout and EI as well as the relationship between burnout and performance on traditional evaluation methods. We hypothesized that burnout would be associated with lower levels of EI and resident performance.

METHODS

General surgery residents at the University of Alabama at Birmingham (UAB) general surgery residency program were invited to complete a survey measuring burnout and emotional intelligence. The survey was distributed via email in June of 2016 using Qualtrics survey software (Qualtrics Research Suite, https://www.qualtrics.com/). Residents' participation was voluntary and they received no incentive for their participation. The identities of the participating residents were collected to link the survey results with the appropriate resident performance scores. The identities of participating residents remained blind to all investigators except for one who assigned anonymous identifiers. Given the small sample size of our study, results of the survey were not shared with the residents to uphold confidentiality. Residents had access to counseling services through a professional development office throughout the study, and each resident received a lecture in physician wellness at the beginning of their internship. This study protocol was approved by the University of Alabama at Birmingham Institutional Review Board (IRB # X141209003).

Burnout was measured using the Maslach Burnout Inventory-Human Services Survey (MBI-HSS), which gives each participant 3 separate scores for 3 major components of burnout; Emotional Exhaustion, Depersonalization, and Personal Accomplishment.[14] The MBI-HSS consists of 22 job-related statements, such as "I feel emotionally drained from my work" and "I feel depressed at work." The residents were asked to score each statement from 0 to 6 based on how often they have the feeling expressed in the statement. A score of 0 correlating to "Never" and a score of 6 correlating to "Everyday." These scores were then systematically added to achieve the individual scores for the components of burnout. The scale for scoring each component was divided into 3 domains; Low, Moderate, and High. Each domain corresponds to that participant's risk for experiencing that component of burnout. Scoring in the "Low" domain for Personal Accomplishment and the "High" domain for Emotional Exhaustion and Depersonalization were said to be positive for experiencing a symptom of burnout. The reported values are averages achieved by dividing each resident's total score by the number of items responded to for each component of the MBI-HSS: 9 items for Emotional Exhaustion, 5 items for Depersonalization, and 8 items for Personal Accomplishment. The cutoff ranges of scores for Personal Accomplishment domains were: 0 to 3.88 (Low), 4 to 4.75 (Moderate), and 4.88+ (High). The ranges of scores for Depersonalization domains were:0 to 1.2 (Low), 1.4 to 2.4 (Moderate), and 2.6+ (High). The ranges of scores for Emotional Exhaustion domains were: 0 to 1.78 (Low), 1.89 to 2.89 (Moderate), and 3+ (High). The MBI-HSS does not provide an overall burnout score or a definition of when someone is burned-out; it only provides individual scores for the 3 components of burnout. In this study, we *a priori* defined a resident as experiencing burnout if the individual scored in the least desirable domain ("Low" for Personal Accomplishment and "High" for Emotional Exhaustion and Depersonalization) for at least 2 of the 3 components of burnout.

Emotional Intelligence (EI) was measured using the Trait Emotional Intelligence Questionnaire-Short Form