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Impact of personality, sex, and generation on resident operative role



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ABSTRACT

Background: The aim of this study was to determine if gender, generation, or personality traits influence resident perception of their operative role.

Materials and methods: Over a 4-wk period, daily surveys were sent to residents and staff to assess the Accreditation Council for Graduate Medical Education (ACGME) role of residents on operative cases. Personality was assessed on completion of the survey period using the big five inventory (BFI).

Results: In 184 paired responses, resident perception of their operative role and staff reported resident role coincided in 82.1% surveys. In instances when resident perception differed from staff assessment, neither gender nor generation correlated with discrepancy between resident and staff assessment. High BFI agreeableness of staff was associated with more disparity, and high BFI neuroticism scores of staff translated to less disparity between resident-perceived and staff-assessed operative roles (odds ratio 2.63, $P = 0.003$ and odds ratio 0.44, $P = 0.002$, respectively).

Conclusions: This study demonstrates agreement between resident and staff reports of ACGME resident operative role in most cases; however, staff personality traits influenced resident's perception of their operative role. Perceived underparticipation in operative cases may influence a resident's experience during training, which may impact their reporting of operative experience to the ACGME.

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1. Introduction

Experiential learning forms the core of surgical resident education and is largely measured by faculty assessment of the Accreditation Council for Graduate Medical Education (ACGME) core competencies and the ACGME resident case log. General surgery residents are expected to participate in a minimum number of cases in each defined category to qualify as eligible for membership in the American Board of Surgery. Resident role in cases may be categorized in the ACGME case log as surgeon, first assistant, or teaching assistant. Residents

claim the role of surgeon when they do more than 50% of the case; however, this is determined by self-assessment.

Accuracy of self-assessments is influenced by many variables including year in training, gender, nationality, age, performance quartile, confidence, and personality factors [1–5]. In a large national survey of urologists, residents underperceived their involvement in laparoscopic nephrectomies compared with staff assessment [6]. However, this survey did not pair responses with specific cases or by program. A number of studies have elucidated the impact of personality traits on formal assessment of students and

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residents, finding that divergent personalities in the teaching and learning environment influence evaluation of the rotation and/or student [4,7,8]. Personality has been shown to be linked to generation, with current surgery residents being more introverted compared with residents from previous generations [9]. Additionally, studies of surgery residents showed that although male and female residents go through the same training programs, female residents are more likely to report gender-specific differences during training and may underestimate their abilities [2,10]. We sought to explore discrepancies between resident perception of operative role and staff assessment of the resident's ACGME operative role. To assess this, we examined differences in the residents' perception of their ACGME operative role compared with those in the staff assessment on a case-by-case basis; specifically examining the influence of personality, gender, and generation on perception of operative role.

2. Material and methods

2.1. Operative role assessment

On institutional review board approval and informed consent, a unique identifier was assigned to each participant so data could be tracked over the 4-wk assessment and linked to gender, generation, and personality traits of study participants. All cases identified within the electronic medical record operative log for participating staff were used to generate daily surveys. The surveys were created with an online survey generator (google.com/forms), and links for the survey were sent by text message or email based on participant preference. Daily surveys were sent to staff and the resident service team working with the operating surgeon. Staff was asked to assess the ACGME role of each resident on their team; residents were asked to assess their own role. They were able to select the following roles: surgeon, first assistant, teaching assistant, not present for case, or no ACGME reportable role. Both resident and staff accept reporting "resident surgeon" on the case implies doing more than 50% of that case. Comparison of ACGME roles occurred on all cases with paired responses from staff and resident, all other cases were excluded from analysis.

2.2. Personality and generation assessment

On completion of the operative log survey period, participant's personality traits were measured with the big five inventory (BFI). The BFI is a self-reported, 44-question personality inventory centered on a major theory in psychology that there are five major personality traits as follows: openness, conscientiousness, extroversion, agreeableness, and neuroticism [11]. The inventory reveals a score (1–5) on each of these personality traits, with a higher score indicating that a person is more inclined to demonstrate that personality trait. Generation was assigned to each study participant and defined as boomer generation (to 1964), generation X (1965–1980), and millennial generation (1980 on).

2.3. Participants

Twenty-two surgery staff and residents participated in this prospective survey to assess ACGME case roles in the operating room. Resident participants included general surgery residents on core surgical rotations. Residents were excluded if they were interns or on off-site rotations. These exclusion criteria left 10 residents (postgraduate year (PGY)-2 [$n = 4$], PGY-3 [$n = 1$], and PGY-5 [$n = 5$]).

2.4. Analysis

Fisher exact test was used for categorical statistical analysis, and unpaired Student t-test for continuous variables. Simple logistic regression was used to assess determinants influencing discrepancy of resident-perceived operative role and staff-assessed operative role. Because gender and age are not independent variables in relation to BFI [12], only independent personality factors were assessed using multiple logistic regression to calculate a likelihood ratio chi-square of the influence of personality factors on discrepancy between operative role. Statistical analysis was conducted using STATA 12.1 (StataCorp, College Station, TX).

3. Results

3.1. Participants and operative case spread

Resident and staff survey responses were matched, resulting in 184 paired responses of resident and staff. Paired responses from resident and staff were available in 110 out of 145 possible operative cases during the 1-mo assessment. The operative cases that the study participants were involved in were typical of the spread of cases done by general surgery residents at this hospital and included trauma (35%), general acute care (35%), access (10%), surgical oncology (7%), colorectal (7%), bariatric (3%), transplant (2%), and pediatric (1%). Twelve general surgery staff (86%) completed the study surveys, of which two (17%) were female (Table 1). All ten eligible residents participated in the study, of which 70% were female (Table 1). Twenty percent of residents were considered generation X, whereas the remaining residents were of the millennial generation (Table 1). The majority of staff was considered as the boomer generation (58%), whereas the rest of the staff was generation X. No significant differences were observed between personality factors of residents and staff based on BFI assessment (Table 1). Resident's responded to 96.5% of prospective surveys, and staff responded to 83.8% (Table 1).

3.2. Perception of operative role analysis

Resident self-assessed operative role and staff-reported resident role coincided in 82.1% of responses (Table 2). In the 17.9% of cases where resident perception differed from staff assessment, resident perception of a more involved role and a less involved role occurred at a similar rate (48.4% versus 51.5%, respectively). Although differences in perception of operative roles were not statistically discernable, residents

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