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# Personality traits within a pediatric surgery fellowship applicant pool



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## ABSTRACT

**Background:** The Big Five framework examines five factors that represent a description of human personality. These factors correlate with success measures and job satisfaction. The Big Five Inventory is a 44-item instrument designed to measure the Big Five framework. Our aim was to document the distribution of Big Five personality traits among Pediatric Surgery fellowship applicants, compare with community norms, surgical residents, between genders, and correlate to the fellowship match results.

**Materials and methods:** Forty Pediatric Surgery fellowship applicants at a university hospital completed the Big Five Inventory during the interview process. It was analyzed and compared with general surgery residents' results and community norms. The data were compared regarding gender and match results. Continuous variables were compared by unpaired t-tests and Mann–Whitney tests. A  $P$  value  $<0.05$  was considered significant.

**Results:** The 40 applicants were equally divided between male and female. When compared with general surgery residents and community norms, applicants of both genders scored higher on agreeableness ( $P < 0.01$ ), conscientiousness ( $P < 0.01$ ), and emotional stability ( $P < 0.01$ ). Applicants scored higher on openness when compared with surgical residents ( $P < 0.01$ ). Male applicants scored higher on emotional stability than females ( $P = 0.026$ ). Matched applicants scored higher for conscientiousness than unmatched applicants ( $P = 0.016$ ).

**Conclusions:** Pediatric Surgery fellowship applicants expressed higher levels of desirable professional traits compared with general surgery residents and community norms. Male applicants demonstrated higher emotional stability than females. Conscientiousness was higher in matching applicants. This first reported experience with personality testing in Pediatric Surgery fellow selection demonstrated potential utility in applicant matching.

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## Introduction

Personal interviews remain an integral part of the Pediatric Surgery fellowship candidate selection process. Major decisions about both the applicants' future and the institutions' personnel investment are frequently based on a short interview with subjective evaluations. In the competitive world of Pediatric Surgery fellowship applications, the potential role of an objective personality evaluation to assess strengths and weaknesses has not been evaluated.

Personality testing is a structured attempt to characterize personality traits in an objective manner and has been used in a variety of work environments to facilitate successful employee hires.<sup>1,2</sup>

The Big Five framework examines five factors that represent a broad extent of personality. The traits that constitute the Five Factor Model include extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience. These five factors are reported to correlate certain personality traits to an individual's tendency to succeed.<sup>3-5</sup>

The Big Five Inventory (BFI) was developed by Oliver P. John, PhD.<sup>6-9</sup> It is a specific 44-item self-report questionnaire based on the Big Five framework and verified by factor analysis. The 44 items consist of brief descriptors to which the responder answers with a 5-point Likert scale that ranges from 1 (strongly disagree) to 5 (strongly agree).

Literature has demonstrated the utility of the BFI in predicting high achievement, job satisfaction, and competence in the workplace<sup>2,10-12</sup> and in the academic world.<sup>3-5,13,14</sup> The BFI has been used in highlighting personality differences along gender lines<sup>15,16</sup> and in identifying burnout susceptibility and stress coping mechanisms.<sup>17,18</sup>

Moreover, the BFI has been used to predict future specialty choice among medical students, to highlight the differences between medical students and residents, and to correlate the different personality traits with certain medical specialties.<sup>19-23</sup> Some studies went as far as to correlate certain personality traits to an individual's well-being.<sup>24</sup>

The aim of this study was to document the distribution of BFI personality traits among Pediatric Surgery fellowship applicants, compare the findings to community norms and general surgery residents, compare between the genders, and correlate the findings to the fellowship match results.

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## Methods

### Cohort

Ninety-seven individuals applied to the 2016 Pediatric Surgery Match for a 2017 appointment. The applicants were screened based on their academic achievement, American Board of Surgery In-Training Exam (ABSITE) score, and publications and written letters of reference. Forty-six invitations for personal interviews were sent and 40 applicants (87%) completed the interview process. This included four 15-min faculty interviews and completion of the 44-question BFI questionnaire. The data were prospectively collected and used to create a match list for the institution that was forwarded to the

National Resident Matching Program (NRMP).<sup>25</sup> This is an institutional review board–approved study (IRB number, 5160285).

### Variables

The BFI is a 44-item self-report inventory that examines the Five Factor Model. It evaluates five major bipolar traits. Each item in the questionnaire is scored on a 5-point Likert scale that ranges from 1 (strongly disagree) to 5 (strongly agree). The total score for each trait is the average of eight to 10 items on the questionnaire. The Five Factor Model is based on the language manifestations of personality using factor analysis (the lexical hypothesis).<sup>6,7,26</sup> The five personality traits examined by the BFI include openness, conscientiousness, extraversion, agreeableness, and emotional stability as summarized in Table 1.<sup>15,21,23,27</sup>

### Analysis

The BFI was analyzed and then compared with community norms and general surgery resident responses. Community normative data were based on 75,000 American adults who participated in the Gosling–Potter Internet Personality Project.<sup>7,27</sup> The sample from which these data were derived is diverse and does not favor a gender, socioeconomic class, or geographic region. It is stratified according to gender, as differences between ethnicities and age groups were found to be trivial.

General surgery residents' BFI data were obtained from a study conducted by Hoffman *et al.* that included responses from 39 surgery residents.<sup>23</sup>

The data were also analyzed to compare gender and correlated to the NRMP Pediatric Surgery match results.<sup>25</sup> The success or failure in obtaining a fellowship position through the NRMP was the primary outcome recorded.

### Statistics

Variables were correlated to the community norms (normative data were derived from a sample of 32,873 male adults and 43,540 female adults),<sup>7,27</sup> general surgery resident answers,<sup>23</sup> and compared between genders. Variables in applicants who matched were compared with those who were unsuccessful in the match. Unpaired *t*-tests were used to analyze continuous data. When the assumption of normality did not hold, a Mann–Whitney test was used. A *P* value <0.05 was considered statistically significant.

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## Results

Forty applicants were interviewed and offered the BFI questionnaire. All applicants completed the BFI questionnaire. The applicants were distributed evenly between genders (50% male). Eighteen of the applicants (45%) who were interviewed subsequently matched successfully to a 2017 Pediatric Surgery fellowship program.

Both the matched and the unmatched applicant groups had an equal gender distribution (50% male). There were no

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