



The Use of Personality Assessment in Mentoring and to Aid in Self-reflection in Orthopaedic Surgery Residency Programs

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Background

- Personality refers to an individual's long-standing traits and characteristic patterns that drive them to consistently think, feel, and behave in particular ways and **plays an important role in performance in medical education and mentorship**.
- Various validated personality assessment tools have been developed, using self-reported measures, to rely on an individual's personal responses regarding tendencies and preferences in various situations, highlighting their innate personality characteristics
- Personality assessment can **aid in the ability to identify strengths and areas for development** by understanding how one's personality influences their learning and interpersonal relationships

Objective

To evaluate the use of the Hogan Personality Inventory (HPI) in the mentoring process in promoting self-reflection, self-improvement, avoidance of potential problems, and improvement in interpersonal experiences during orthopaedic residency and beyond.

Materials & Methods

Prospective, cross-sectional, observational study of trainee-reported perceived impact and benefits of the use of the HPI personality assessment tool in orthopaedic surgery.

Study Intervention:

- All participants completed the HPI at the beginning of residency and were provided results for review
- The assessment was reviewed in detail with their program director during their second year of training
- Potential challenges identified by the assessment were specifically reviewed and mentors were provided a "transition to practice guide" that made suggestions for methods to address potential challenges based on the HPI
- For this study, all data were collected from February 2020 through August 2020. All current residents and recent graduates who had completed the HPI during their residency were invited to participate in the study

Study Protocol:

- Participating residents were invited through e-mail to complete a survey to evaluate their experience with the HPI assessment and its impact on avoiding potential problems and improving various interpersonal experiences throughout residency.

Data Analysis:

- Descriptive statistics (means, SDs, and percentages) were calculated for the total sample and groups based on junior vs senior status, on re-review of results, and on perceived accuracy of results.
- Two-sample t-tests were used to examine differences between groups on the individual survey items ($p < 0.05$ considered significant)

Results

- A total of 34 (56.7% of eligible) individuals participated: 31 current residents and 3 graduates
- **Overall Study Population** (Table 1)
 - 82.4% HPI very accurately represented how they perceive themselves
 - 58.8% better understanding of their potentially perceived strengths and weaknesses
 - 41.2% enhanced ability to avoid potential problematic tendencies & 44.1% enhanced ability to play to their strengths
 - **Did not** report important benefits in their relationships with mentors, coresidents, nonphysician staff nor patients as a result of using the HPI
 - **75.7%** and **72.7%** were **satisfied** or **very satisfied** with the **mentorship** they are receiving
 - **64.7%** are **very likely to recommend** its use in other residency programs

Table 1. Overall Participant Experience With HPI Assessment

Survey Item	Mean (SD)	(n) % of Responses ≥ 4
Perceived accuracy of personality profile	3.97 (0.79)	(28) 82.4%
Better understand potentially perceived strengths and weaknesses	3.62 (1.12)	(20) 58.8%
Enhance ability to avoid potential problematic tendencies	3.14 (0.96)	(14) 41.1%
Enhance ability to play to strengths	3.29 (1.03)	(15) 44.1%
Relationship with mentor has benefited	2.85 (1.10)	(7) 21.9%
Relationship with coresidents has benefited	3.14 (0.99)	(13) 38.3%
Ability to interact with nonphysician staff has benefited	2.97 (0.94)	(9) 26.4%
Ability to interact with patients has benefited	2.97 (0.90)	(9) 26.4%
Satisfaction with mentorship as clinician	3.88 (0.96)	(25) 75.7%†
Satisfaction with mentorship as researcher	3.82 (0.88)	(24) 72.7%†
Satisfaction with use of HPI	3.56 (0.74)	(18) 56.3%
Likelihood to recommend HPI	3.53 (0.89)	(20) 62.5%

Table 2. Participant Experience With HPI Assessment, Compared by Perceived Accuracy of Results

Survey Item	Accuracy			P value		
	Neutral or Inaccurate ($\leq 3/5$) (N = 6)	Somewhat (4/5) (N = 21)	Extremely Accurate (5/5) (N = 7)	≤ 3 versus 4	≤ 3 versus 5	4 versus 5
Perceived accuracy of personality profile	2.66 (0.82)	4.00 (0)	5.00 (0)	—	—	—
Better understand potentially perceived strengths and weaknesses	2.17 (0.98)	3.76 (0.89)	4.43 (0.79)	$<0.001^a$	$<0.001^a$	0.090
Enhance ability to avoid potential problematic tendencies	2.17 (0.98)	3.24 (0.77)	3.71 (0.95)	0.009 ^a	0.015 ^a	0.192
Enhance ability to play to strengths	2.17 (0.98)	3.38 (0.86)	4.00 (0.82)	0.006 ^a	0.003 ^a	0.109
Relationship with mentor has benefited	2.33 (0.82)	2.86 (0.91)	3.29 (1.70)	0.216	0.239	0.398
Relationship with coresidents has benefited	2.50 (0.84)	3.33 (0.97)	3.14 (1.07)	0.067	0.259	0/663
Ability to interact with nonphysician staff has benefited	2.33 (0.82)	3.10 (0.83)	3.14 (1.21)	0.058	0.194	0.908
Ability to interact with patients has benefited	2.33 (0.82)	3.05 (0.86)	3.28 (0.95)	0.083	0.081	0.543
Satisfaction with mentorship as clinician	3.33 (1.21)	4.00 (0.92)	4.00 (0.82)	0.159	0.263	1.00
Satisfaction with mentorship as researcher	3.33 (1.37)	3.85 (0.75)	4.14 (0.69)	0.235	0.194	0.371
Satisfaction with use of HPI	2.83 (0.41)	3.05 (0.86)	3.85 (1.07)	0.001 ^a	0.050 ^a	0.757
Likelihood to recommend HPI	2.66 (1.03)	3.66 (0.58)	4.14 (1.06)	0.005 ^a	0.028 ^a	0.142

HPI = Hogan Personality Inventory

^aSignificant difference.

P values of <0.05 were considered to be statistically significant for comparisons. Scores on each item could range from 1 to 5, where 1 = "not at all," "strongly disagree," or "very dissatisfied" and 5 = "extremely," "strongly agree," or "very satisfied."

Results

- **Differences Based on Perceived Accuracy of Results** (Table 2)
 - Participants who did not believe that their results profile was an accurate representation of their personality vs those who did
 - **Many significant differences**
- **Differences by Level of Training**
 - PGY 1-3 vs PGY 4-5 & graduated residents
 - **No significant differences** among any survey items
- **Differences Based on Review of Results**
 - Participants who individually re-reviewed their HPI results vs participants who did not re-review their results
 - **Significant differences** on nearly every survey item

Discussion

- To the best of our knowledge, this is the first study evaluating the utility of the HPI as a tool to augment mentorship in residency training
- Important implications regarding the use of personality assessments for improving performance in orthopaedic residency programs
 - HPI validated in business and sales, but no literature in medical education
 - Strong majority of participants believed their results from the HPI were accurate suggesting it is a fair choice for orthopaedic residency programs
- Residents who perceived their results reports to be accurately reported it **played a significant role in self-reflection** resulting in better understanding of perceived strengths and weaknesses and enhanced ability to play with those strengths while also avoiding problematic tendencies.
- The fact that those who re-reviewed their results more frequently reported markedly higher levels of benefit supports the notion that continued self-reflection and adjustment is critical in the continued growth and development because the situations and stressors change over the course of residency

Limitations

- Data were voluntarily provided by residents through self-report, thereby raising the possibility of response bias or self-selection effect
- Although it was disclosed that responses to the survey would be anonymous and confidential, some respondents may have answered survey questions in a manner that supported their home programs or faculty
- We did not compare the effectiveness against no tool because no external scoring of these domains was possible.

Conclusions

- Personality assessment is not a precise science, but it can be valuable within the mentoring process in promoting introspection and strengthening relationships within orthopaedic surgery when they are **valued and emphasized by the user**.
- The results suggest that their use provided participants with a **better understanding of their potential strengths and weakness** as a physician for most participants.
- Those who revisited their HPI over time found reported greater effectiveness and benefit in its use