

Correlations Between the NEO-PI-R and Physician Assistant Student Professionalism and Performance

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Abstract. Growing competition for a limited number of seats requires physician assistant (PA) programs to efficiently identify qualified applicants most likely to succeed. Personality inventories may be useful to evaluate applicants, but strong evidence of their value in the admission selection process is limited. We assessed correlations between the NEO Personality Inventory-Revised (NEO-PI-R) and pre-determined application selection criteria as well as professional, academic, and clinical performance indicators among 47 Wichita State University PA students. Statistical analysis demonstrated that neuroticism was moderately correlated with course scores <82% as well as the summative exam score. Agreeableness and conscientiousness were correlated with professional performance as measured by professional warnings and counseling.

1. Introduction

The growing demand for physician assistants (PAs) coupled with flexible practice settings and high job satisfaction has consistently placed PA as a top 10 career choice, creating stiff competition for available program seats. As more applicants attempt to join the ranks, the nearly 170 programs around the nation are challenged to select applicants with the best academic and professional potential. Typical admission criteria such as GPA and GRE scores are good predictors of academic success, but offer little insight into other competencies, such as interpersonal skills and professionalism. We are interested in expanding upon selection criteria to better identify applicants likely to exemplify PA values and practice. Few studies have evaluated the role of professionalism in PA students and its relationship to performance outcomes. Choosing applicants who already possess personality characteristics of professionalism may be more effective than assuming professionalism can be taught or learned [1].

Assessing correlations of professionalism and personality domains may assist in early identification of applicants who will be the best fit for the profession.

2. Methods, Results, Discussion, and Significance

This study assessed correlations between personality domains from the NEO Personality Inventory-Revised (NEO-PI-R) and professionalism and academic and clinical performance in 47 WSU PA students. The NEO-PI-R is a concise measure of five personality domains and the 30 most important facets that define each domain [2]. Studies in medical and dental schools used the NEO-PI-R as an instrument to identify correlations with professionalism [3, 4]. The inventory is a 126-item Likert scale test that takes approximately 20-40 minutes to complete and provides a comprehensive sketch that summarizes an individual's emotional, interpersonal, experiential, attitudinal and motivational styles. Results from the inventories were hand scored and systematically verified for accuracy.

NEO-PI-R Personality Domains

Neuroticism: Contrasts emotional stability or adjustment with maladjustment; the general tendency to experience negative affects such as fear, sadness, embarrassment, anger, guilt, and disgust.

Extraversion: Includes sociability, enjoying people and preferring large groups and gatherings; extraverts are also assertive, active and talkative; they like excitement and stimulation and tend to be cheerful in disposition.

Openness to Experience: Includes active imagination, aesthetic sensitivity, and attentiveness to inner feelings, preference for variety, intellectual curiosity, and independence of judgment.

Agreeableness: Dimension of interpersonal tendencies; the agreeable person is fundamentally altruistic. They are sympathetic to others and eager to help them, and believe that others will be equally helpful in return.

Conscientiousness: Describes self-control in terms of the active process of planning, organizing, and carrying out tasks.

Outcome Measurements

Academic, clinical and professional key performance indicators included: preceptor evaluations of student performance in the six PA competencies during 11 clinical rotations, scores from two nationally standardized PA Clinical Knowledge Rating and Assessment Tools (PACKRAT), PA National Certifying Exam (PANCE), program end-of-rotation exams and summative exam, didactic program GPA, academic warnings (exam scores <72%), number of courses where the final grade was < 82% overall, number of professional warnings and counselings (student conversations regarding behavior), and unexcused absences, scores from letters of recommendations, and interview scores.

Data Analysis and Institutional Review Board

The Wichita State University (WSU) IRB approved this project and written informed consent was required. Correlations were analyzed using a 2-tailed Pearson’s *r*. Statistical significance was set at *p* < .05. Strength of correlation is categorized as weak (*r* = .01 to .20), moderate (*r* = .21 to .5) and strong (*r* = .51 to .99) [5].

Results

Three personality domains demonstrated correlation with performance indicators (Table 1). The domain of neuroticism was moderately correlated with two measures of academic performance, number of courses where the student scored <82% (*r* = -.330) and the summative exam score (*r* = .359). Agreeableness and conscientiousness were correlated with professional performance as measured by the number of professional warnings and counseling. A higher level of conscientiousness and a lower level of agreeableness were moderately correlated with an increased number of professional warnings and counselings (*r* = .330 and *r* = -.458, respectively).

As expected, there were strong positive correlations between PANCE and several academic performance measures including PACKRAT-1 (*r* = .737), PACKRAT-2 (*r* = .868), program summative exam scores (*r* = .686), and average end-of-rotation exam scores (*r* = .788) and program GPA (*r* = .792). Likewise, there were strong negative correlations between PANCE scores and negative indicators of academic performance including the number of courses < 82% overall (*r* = -.612) and number of academic warnings (*r* = -.642). Pre-program GPA was a good indicator of academic success as it was

correlated with program GPA (*r* = .397), number of courses <82% (*r* = -2.92), PACKRAT-2 (*r* = .322), end-of-rotation exams (*r* = .347), and the summative exam (*r* = .686). Interview scores were correlated with EOR (*r*=.370), courses <82% (*r*=.372) and program GPA (*r*=.326).

Table 1
Domain Correlations

Domain	Performance Indicator	r value	p value
Neuroticism	Num. of courses less <82%	-0.330	<0.023
Neuroticism	Summative Exam Score	0.359	<0.013
Agreeableness	Professional performance	-0.458	<0.001
Conscientiousness	Professional performance	0.330	0.023

The number of professional warnings and counselings were moderately correlated with several areas within the letter of recommendation scores: oral communication (*r* = .378), intellectual ability (*r* = .354), interpersonal skills (*r* = .351), and team skills (*r* = .339). Correlations were also found between letter of recommendation scores and academic performance. Scores for maturity (*r* = .327) and reaction to criticism (*r* = .300) were moderately correlated to PANCE scores and maturity was correlated to the number of courses where the student scored < 82% (*r* = -.477) and number of academic warnings (*r* = -.403).

Discussion

It may be difficult to detect differences in students that are likely to have narrow variability in regards to academic potential and motivation, such as those applying for PA programs. The sample size is small, so these data may not be generalizable to all PA programs. Variations in interview scores and preceptor evaluations may occur due to inter-rater reliability. If correlations are demonstrated between personality domains and professionalism, personality inventories may prove to be a valuable instrument in the selection process for PA programs.

3. Conclusions

Personality assessments such as the NEO-PI-R may be useful adjuncts during the PA student selection process, paying particular attention to the neuroticism, conscientiousness and agreeableness domains. Programs should not ignore the significance of more conventional selection criteria such as pre-program GPA and letter of recommendation scores.

4. Acknowledgements

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5. References

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