RESEARCH BRIEF

The Predictive Strength of the Physician Assistant College Admissions Test (PA-CAT) Scores to 2024 Cohort Complete Didactic Performance at St. Elizabeth University Physician Assistant Program

Saint Elizabeth University: Class of 2024 Report
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Mission:

The mission of the MS PA Program at Saint Elizabeth University is to provide a collaborative, respectful, and spiritually enriched learning environment that educates PAs who are competent and ethical medical providers committed to high-quality patient care as responsible members of the healthcare team. Our graduates will promote the dignity and diversity of all patients, in the spirit of service, social justice, and leadership to the community and the PA profession.

Director/Assistant Professor: Medea Y. Valdez, DHEd, PA-C

Dr. Medea Valdez, DHEd, MPAS, PA-C, is the founding PA Program Director at Saint Elizabeth University, contributing over 30 years of clinical expertise in Internal Medicine, Chemical Dependency, Employee Health, Oncology, and Endocrinology. Graduating from The Brooklyn Hospital Center / Long Island University Physician Assistant Program in 1990, Dr. Valdez has since been dedicated to PA education. With a Master of Physician Assistant Studies (MPAS) from Oregon Health and Science University, her research focused on stress management for working women. In 2012, she earned a doctorate in Health Education (DHEd), exploring medical errors and the role of PA students in patient safety. Dr. Valdez's current research interests include interdisciplinary education, simulation for enhancing student learning, and stress management. At Saint Elizabeth, she finds joy in working with faculty and students, confident they are shaping competent and compassionate healthcare professionals. Outside academia, Dr. Valdez enjoys family time with her husband, Tim, and indulges in hobbies like reading, baking, and quilting.

Additional Information

For questions about the research brief, access to the full research study, or to express interest in participating in future research studies, reach out to:

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Research Brief: The Predictive Strength of the Physician Assistant College Admissions Test (PA-CAT) Scores to 2024 Cohort Complete Didactic Performance at St. Elizabeth University PA Program

Abstract

The PA-CAT is a 240-item specialized, discipline-specific assessment that is designed to measure knowledge and application in nine prerequisite science subjects necessary for success in the demanding Physician Assistant (PA) curriculum. The current research study investigated the relationship between the PA-CAT scores and performance during the didactic year of the incoming class (n=36) of 2024 PA program at one institution. The results indicate that PA-CAT Composite scores are useful in predicting performance in didactic courses of the PA program, didactic Physician Assistant Clinical Knowledge Rating and Assessment Tool (PACKRAT) scores, first semester GPA, second semester GPA, cumulative overall GPA at the end of second semester, third semester GPA, cumulative overall GPA at the end of third semester, and percentage of courses with a C grade or below.

Physician Assistant College Admissions Test (PA-CAT)

The PA-CAT is a 240-item specialized, discipline-specific assessment that is designed to measure knowledge and application in nine prerequisite science subjects necessary for success in the demanding Physician Assistant (PA) curriculum. The PA-CAT has been developed specifically for use by PA educators and their admissions departments as part of a holistic admissions process. As of June 21, 2023, the assessment has been administered to 2,979 examinees since it was first administered on May 1, 2020. One Composite scaled score based on all items comprising the assessment and three subject scaled scores (Anatomy & Physiology, Biology, and Chemistry) are reported for each examinee. The reliability of PA-CAT Composite scaled scores is very high (0.937), indicating that the PA-CAT Composite scaled scores are very dependable, signifying that it is highly likely that the examinees with higher scaled scores have higher knowledge and application skills in the prerequisite science subjects.

Relationship between PA-CAT Composite Scores and Performance in Physician Assistant Program

The relationship between PA-CAT Composite scores and performance in the PA program at St. Elizabeth University was investigated by calculating the Pearson correlation coefficient and the associated statistical significance. These are discussed next along with the interpretation of the strength of the relationship in terms of the size of the correlation coefficient.

Correlation Coefficient

Correlation coefficient quantifies the degree of relationship between two variables. Its value can range from -1 to +1. A positive value implies that when one variable increases, the other tends to increase, as well. A negative value implies that when one variable increases, the other tends to decrease. A value of 0 implies that there is no discernible linear relationship between the variables.

The knowledge of the relationship between two variables can be useful in predicting one from the other, especially if one variable is observed in advance of the other. At St. Elizabeth University, PA-CAT

Composite scores have a positive correlation with performance in multiple didactic courses, didactic PACKRAT scores, first semester GPA, second semester GPA, cumulative overall GPA at the end of second semester, third semester GPA, and cumulative overall GPA at the end of third semester. Students with higher PA-CAT Composite scores are expected to do better in these compared to students with lower PA-CAT Composite scores. PA-CAT Composite scores have a negative correlation with the percentage of courses with a C grade or below. Students with higher PA-CAT Composite scores are expected to get a lower percentage of C grades or below in the didactic year of the PA program.

Statistical Significance

Statistical significance is determined using the *p* value, the probability of observing a correlation coefficient by chance if the actual coefficient is 0. For example, if the *p* value associated with a correlation coefficient is 0.082, the probability of observing this or a higher absolute correlation coefficient by chance is 8.2% (8.2/100 = 0.082), given that the actual coefficient is 0. A correlation coefficient is statistically significant if the *p* value is lower than the probability that the decision makers consider too low to be by chance only. This threshold value is referred to as significance level or alpha. One of the most common conventional alpha values used in educational settings is 0.05, also referred to as 5% significance level. When more conservative decision making is desired a lower alpha value of 0.01 (1% significance level) is used.

The correlation of PA-CAT Composite scores with performance in the PA program are statistically significant at the 5% significance level for several variables.

Size of the Correlation Coefficient

The higher the absolute correlation coefficient, the stronger the relationship between two variables and the better the prediction of one variable from another. There are general guidelines on the interpretation of the strength of relationships (Cohen, 1988; Cohen, 1992) in terms of the size of correlation coefficient. A correlation coefficient of around 0.100 is considered small, 0.300 is considered medium, and 0.500 or greater is considered large.

Correlation coefficients between PA-CAT Composite scores and PA program performance variables, *p*-values associated with the coefficients, and the interpretation of the size of the relationship are reported in Table 1. Correlation coefficients that were not statistically significant at the 5% significance level are not presented in this report for brevity.

The size of the correlation coefficient of PA-CAT Composite scores with Human Anatomy One at St. Elizabeth University is large. In other words, PA-CAT Composite scores are very useful in the predicting performance of applicants in this course. The size of the correlation coefficient of PA-CAT Composite scores with Patient Centered Communication and Approach to Diversity is medium. PA-CAT Composite scores are useful in predicting the performance of applicants in this course. The relative usefulness of PA-CAT Composite scores in predicting Human Anatomy One is higher than the usefulness of predicting the performance in Patient Centered Communication and Approach to Diversity. Other correlation coefficients in the table can be interpreted similarly.

The scatter plots showing the relationship between PA-CAT Composite scores and the PA program performance variables are presented in Appendix A.

Table 1: Correlation between PA-CAT Composite Scores and PA Program Performance

	Correlation with PA-CAT Composite scores	p value	Statistically Significant (5% level)?	Size of the Correlation Coefficient
Human Anatomy One	0.544	<0.001	Yes	Large
Physiology, Pathophysiology & Genetics One	0.641	<0.001	Yes	Large
Patient Centered Communication and Approach to Diversity	0.411	0.013	Yes	Medium
Human Anatomy Two	0.542	0.002	Yes	Large
Physiology; Pathophysiology & Genetics Two	0.581	<0.001	Yes	Large
Clinical Medicine One	0.608	<0.001	Yes	Large
Clinical Medicine Two	0.377	0.037	Yes	Medium
Clinical Pharmacology Two	0.504	0.004	Yes	Large
PACKRAT 1	0.612	<0.001	Yes	Large
Semester 1 GPA	0.582	<0.001	Yes	Large
Semester 2 GPA	0.472	0.008	Yes	Medium
Cum Overall GPA Semester 2	0.496	0.006	Yes	Medium
Semester 3 GPA	0.449	0.011	Yes	Medium
Cum Overall GPA Semester 3	0.553	0.002	Yes	Large
Percentage of Courses with C grade or below	-0.368	0.027	Yes	Medium

Limitations

A limitation of this research study is that the findings are based on a small sample (n=36) from a single cohort at one PA program and may not be generalizable to other cohorts at the same institution or to other PA programs.

Appendix A: Scatter plots – Relationship between PA-CAT Composite Scores and PA Program Performance