

RESEARCH BRIEF

The Predictive Strength of the Physician Assistant College Admissions Test (PA-CAT) Scores to 2024 Cohort First Semester Performance at the University of Texas Medical Branch Physician Assistant Program

University of Texas Medical Branch: Class of 2024 Report
Dr. Robert J. Philpot Jr., PhD, PA-C (1)
Scott Massey PhD, PA-C, Rajat Chadha, PhD (Psychometrician for PA-CAT)

(1) University of Texas Medical Branch

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University of Texas Medical Branch at Galveston

Physician Assistant Studies

301 University Blvd.

Galveston, TX 77555

Our Mission

To develop and graduate academically and clinically exceptional physician assistants.

Our Philosophy

Enrollment in our program emphasizes the professional role of the physician assistant (PA) student and academic success. Students are expected to demonstrate principles of integrity and honesty. The program aims to educate and prepare qualified physician assistants from diverse backgrounds to practice and improve primary care medicine, particularly in rural and underserved communities. We instill the necessity for an inquisitive and self-structured approach to lifelong learning.

To achieve our mission, the program enforces policies and regulations stated in the UTMB Bulletin and Catalogue. Additional policies and regulations are based on educational and clinical structures, as well as the practical limitations of the program. It is essential for each student to understand the regulations, their enforcement, and their rationale prior to beginning the Physician Assistant Studies program.

Department Chair: Dr. Robert J. Philpot, Jr., PhD, PA-C

Dr. Robert J. Philpot, Jr., PhD, PA-C, brings over 26 years of distinguished experience as the Chairman of the Department of PA Studies. His military career began as a medic in a helicopter ambulance unit stationed in Hawaii. Dr. Philpot earned a Master of Medical Science degree from the Emory University School of Medicine Physician Assistant Program in 1994 as a National Health Service Corps Scholar.



After practicing pediatrics, internal medicine, and family practice at a rural health clinic in Parrish, Florida, Dr. Philpot transitioned to medical education. Serving as a Clinical Assistant Professor at the University of Florida College of Medicine Physician Assistant Program, he later received his PhD in Higher Education Administration in 2005. Dr. Philpot's leadership extended to chairing and directing PA programs in Georgia and Florida before joining the UTMB Physician Assistant Program in December 2018. His commitment to advancing physician assistant education is reflected in his memberships with AAPA, PAEA, MAPA, and TAPA.

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:

Michael Tharp, Manager, Content Department

mtharp@exammaster.com

For information about implementing the PA-CAT at your PA Program, reach out to:

Jim Pearson, CEO

jpearson@exammaster.com

Claudia Biester, Manager, Client Support and Training

PA-CAT Implementation Specialist

cbiester@exammaster.com

Research Brief: The Predictive Strength of the Physician Assistant College Admissions Test (PA-CAT) Scores to 2024 Cohort First Semester Performance at the University of Texas Medical Branch PA Program

Abstract

The Physician Assistant College Admissions Test (PA-CAT) is a 240-item assessment developed for use by Physician Assistant (PA) programs to inform a holistic admissions process. The current research study investigated the relationship between the PA-CAT scores and performance in the first semester of the incoming class (n=85) of the 2024 cohort at the University of Texas Medical Branch PA program. PA-CAT scores are useful in predicting performance in didactic courses in the first semester of the PA program.

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 9 prerequisite science subjects necessary for success in the demanding Physician Assistant 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, with a very high reliability of 0.937. One Composite scaled score based on all items comprising the assessment and three subject scaled scores are reported for each examinee: Anatomy & Physiology, Biology, and Chemistry.

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

The relationship between PA-CAT Composite scores and performance in the first semester of the PA program at the University of Texas Medical Branch 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

The 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 the University of Texas Medical Branch, PA-CAT Composite scores have a positive correlation with performance in the two PA program courses (Human Anatomy and Pathophysiology 1). Students with higher PA-CAT Composite scores are expected to do better in these PA program courses.

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 a 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 the performance in two PA program courses (Human Anatomy and Pathophysiology 1) are statistically significant at the 5% significance level.

Size of the Correlation Coefficient

The higher the absolute correlation coefficient, the stronger the relationship between two variables, and the better would be 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 the correlation coefficient. A correlation coefficient of around 0.1 is considered small, 0.3 is considered medium, and 0.5 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.

The size of the correlation coefficient of PA-CAT Composite scores with Pathophysiology 1 at the University of Texas Medical Branch 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 Human Anatomy is medium. PA-CAT Composite scores are useful in predicting the performance of applicants in Human Anatomy. The relative usefulness of PA-CAT Composite scores in predicting Pathophysiology 1 is higher than the usefulness of predicting the performance in Human Anatomy.

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 |
|-------------------|--|---------|---------------------------------------|-------------------------|
| Human Anatomy | 0.462 | <0.001 | Yes | Medium |
| Pathophysiology 1 | 0.551 | <0.001 | Yes | Large |

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

Limitations

A limitation of this research study is that the findings are based on a small sample ($n=85$) 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

