

ABSTRACT

This study was conducted to determine the statistical relationship between the Physician Assistant College Admissions Exam (PA-CAT) and Clinical GPA and PANCE scores. This is the first study ever completed regarding the relationship between PA-CAT and Clinical GPA and PANCE scores.

PURPOSE

The purpose of this research study was to add data about the development of the PA-CAT; the correlations between it and the PA program clinical year GPA and the PANCE exam are helpful in the ongoing design and refinement of this exam.

METHODS

The PA-CAT exam, consisting of 180 questions covering 12 subject areas, was securely administered to interview candidates and recently matriculated students from 12 distinct PA programs within the United States.

Scaled scores of 181 examinees who were administered the PA-CAT were estimated using the Rasch Model in Winsteps 4.3.4. Estimated reliability of the overall PA-CAT scaled scores for the entire sample (n=1636) used in the calibration was good (0.86).

To identify statistically significant associations, a multivariate multiple regression analysis was performed between the PA-CAT scaled scores (dependent variable) and the PA Program clinical year GPA and PANCE exam scores (independent variables) from the same subjects. Undergraduate GPA (U-GPA) and undergraduate science GPA (USc-GPA) were additional variables included in the regression.

RESULTS

Table 1: Descriptive Statistics

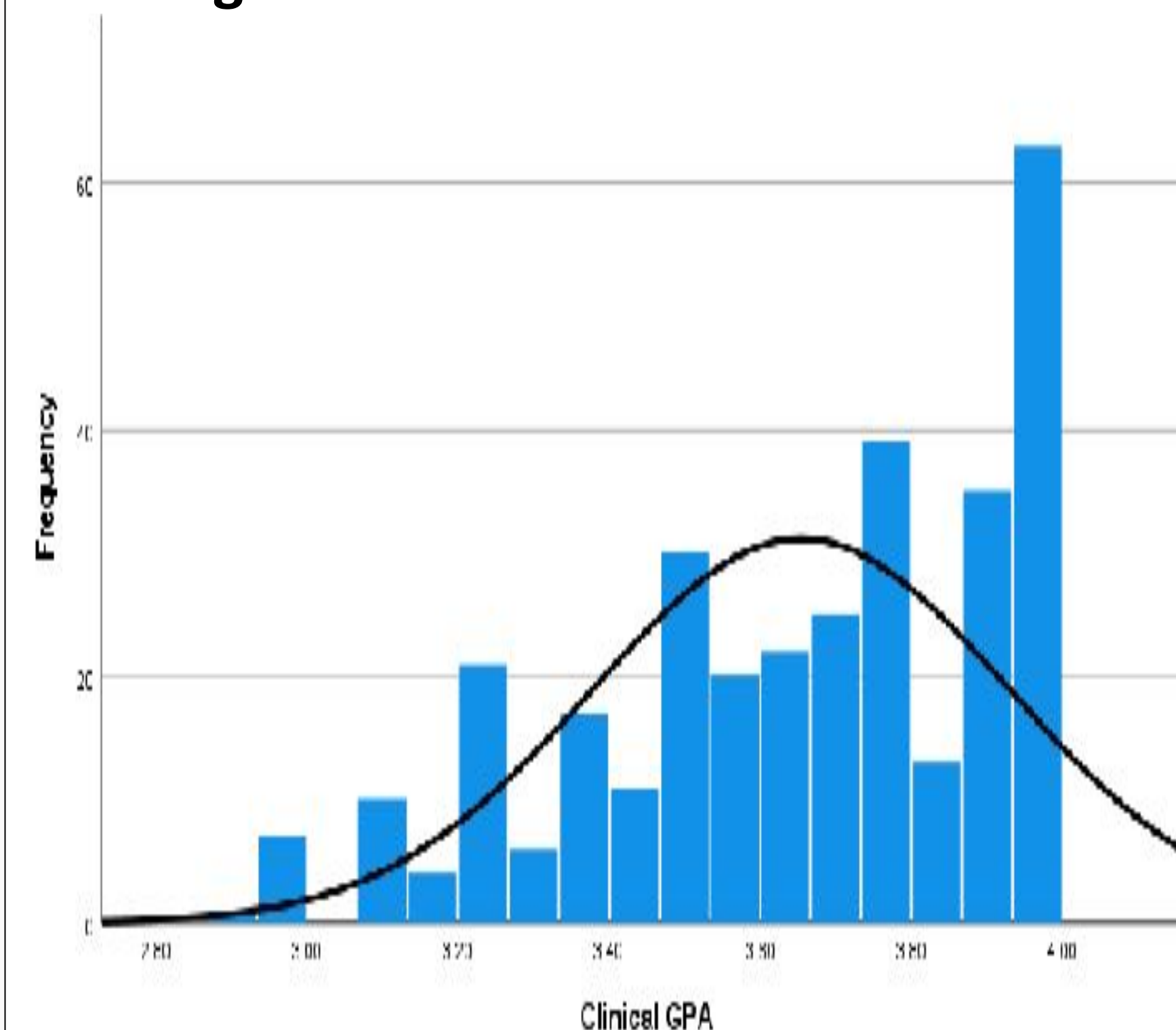
	PA-CAT Scaled Score	Clinical GPA	PANCE	PACKRAT 2
N	436	324	327	302
Mean	503.2	3.65	472.8	148.5
Median	503	3.70	467.0	149.0
SD	20.5	0.28	77.8	19.1
Percentiles	5	470.0	3.13	117.3
	25	490.0	3.50	137.0
	75	517.0	3.88	161.0
	95	537.2	4.00	180.0
Minimum	425	2.88	284	65
Maximum	561	4.00	782	197

Table 2: Reliability of Scaled Scores

	Reliability of Scale Scores*
items (PA-CAT)	0.84
Subject Group 1: Anatomy, Physiology	0.69
Subject Group 2: General Biology, Microbiology, and Genetics	0.68
Subject Group 3: Gen Chemistry, Organic Chemistry, Biochemistry	0.46

*Estimate of reliability since actual reliability could not be computed in Winsteps due to missing ExamineeIDs in the Clinical data

Fig 1: Distribution of Clinical GPA



RESULTS

Table 3: Relationship between PA-CAT scaled scores, Clinical GPA, PANCE scores, uGPA, and sGPA

	Clinical GPA	PANCE	PACKRAT2
Clinical GPA	1.0		
PANCE	0.46**	1.0	
PACKRAT 2	0.54**	0.56**	1.0
Scaled Score: PA-CAT	0.34**	0.39**	0.34**
Scaled Score: Subject Group 1: Anatomy, Physiology	0.41**	0.29**	0.32**
Scaled Score: Subject Group 2 General Biology, Microbiology, and Genetics	0.19**	0.39**	0.27**
Scaled Score: Subject Group 3 Gen Chemistry, Organic Chemistry, and Biochemistry	0.18**	0.26**	0.25**
Undergraduate cumulative GPA (uGPA)	0.19**	0.30**	0.09
Undergraduate science GPA (sGPA)	0.21**	0.19**	0.02

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 4: PA-CAT, uGPA, sGPA in Predicting PANCE scores

Correlation between PANCE scores and:	Correlation Coefficient	% of variance in PANCE explained:
PA-CAT scale scores	0.39	15.1
Undergraduate GPA (uGPA)	0.30	9.1
Undergraduate science GPA	0.19	3.8
PA-CAT scale scores, uGPA, sGPA	0.47	21.8

Table 5: PA-CAT, uGPA, sGPA in Predicting Clinical GPA

Correlation between Clinical GPA and:	Correlation Coefficient	% of variance in didactic GPA explained:
PA-CAT scale scores	0.34	11.3
Undergraduate GPA (uGPA)	0.19	3.7
Undergraduate science GPA (sGPA)	0.21	4.3
PA-CAT scale scores, Undergraduate GPA, Undergraduate science GPA	0.36	12.9

Table 6: PA-CAT, uGPA, sGPA in Predicting PACKRAT 2 Scores

Correlation between Clinical GPA and:	Correlation Coefficient	% of variance in didactic GPA explained:
PA-CAT scale scores	0.34	11.6
Undergraduate GPA (uGPA)	0.09	0.8
Undergraduate science GPA (sGPA)	0.02	~0.0
PA-CAT scale scores, Undergraduate GPA, Undergraduate science GPA	0.36	13.0

DISCUSSION/CONCLUSION

Early results from this research study demonstrate a moderate, statistically significant positive relationship between the PA-CAT and both PA program clinical year GPA and PANCE scores. These relationships were determined to be stronger than USc-GPA and U-GPA. PA educators utilize a variety of cognitive and non-cognitive data sources to make admissions decisions. A common practice is to quantify all data points into an admission score. Utilization of the PA-CAT scaled score and comparison percentile could provide a stronger comparison of basic science knowledge between candidates than using the cumulative GPA, science GPA or GRE. These GPA and GRE scores are not consistent in identifying science knowledge when used in the selection of students.

LIMITATIONS

The limitations of this study included the inability to administer the exam to the intended population of applicants to PA programs and the small sample size. Further study is needed to determine if the exam can be generalized to the entire PA applicant pool.

REFERENCES

- Brown G, Imel B, Nelson A, Hale LS, Jansen N. Correlations Between PANCE Performance, Physician Assistant Program Grade Point Average, and Selection Criteria. *The Journal of Physician Assistant Education*. 2013;24(1):42-44. doi:10.1097/01367895-201324010-00006.
- Butina M, Wyant AR, Remer R, Cardom R. Early Predictors of Students at Risk of Poor PANCE Performance. *The Journal of Physician Assistant Education*. 2017;28(1):45-48. doi:10.1097/jpa.0000000000000107.
- Donnon T, Paolucci EO, Violato C. The Predictive Validity of the MCAT for Medical School Performance and Medical Board Licensing Examinations: A Meta-Analysis of the Published Research. *Academic Medicine*. 2007;82(1):100-106. doi:10.1097/01.acm.0000249878.25186.b7.
- Wilson MA, Odem MA, Walters T, Depass AL, Bean AJ. A Model for Holistic Review in Graduate Admissions That Decouples the GRE from Race, Ethnicity, and Gender. *CBE—Life Sciences Education*. 2019;18(1). doi:10.1187/cbe.18-06-0103.

Conflict of Interest

Two authors are paid researchers for Exam Master. The manuscript was written by the authors without Exam Master planning, oversight, editing, review, financial support, or approval.