

Prediction of Student Success in Entry-Level Physical Therapist Programs

Matt V Provenzano, SPT

Brooke Couch, SPT

Advisors:

Debbie Ingram, PT, EdD

Nancy Fell, PT, PhD

NPTE

- The National Physical Therapy Examination (NPTE) is designed to evaluate basic entry-level skill required for a candidate who has graduated from a program accredited by the Commission on Accreditation of Physical Therapy Education (CAPTE).

Literature Review: Physical Therapy

- Mohr et. al:
 - accreditation status
 - number of faculty with a PhD and /or EdD
 - years of pre-professional and professional coursework
- Kosmahl:
 - age at graduation of physical therapy program
 - program grade point average (GPA)
 - comprehensive examination scores
 - Clinical Performance Instrument score
 - NPTE score

Literature Review: Physical Therapy

- Utzman et. al:
 - study published in 2007
 - purpose: to determine if admissions data could estimate students risk of failing NPTE
 - data from 20 programs on 3,365 students
 - variables: demographic data (age, race or ethnicity, male sex), uGPA, vGRE, qGRE
 - Results: uGPA, vGRE, qGRE, and race or ethnicity (African American, Asian/Pacific Islander, or other) were helpful to predict risk of failure on NPTE

Purpose of our study

- Investigate relationship between admission attributes and success in academic coursework, clinical experiences, and NPTE.

Methodology

- IRB approval obtained Spring 2007 for both programs
- Subjects:
 - 189 students (class of 2005, 2006, and 2007)
 - DPT level students at UTC and UND
 - Both programs offered 3+3 PT curricula
- Procedure:
 - Data was collected from the student's application to the program, academic transcript, clinical performance instruments (CPI), and the School Report sent to the University of Tennessee at Chattanooga by the Federation of State Boards of Physical Therapy (FSBPT)

Variables

- Demographic Data
 - Age at admission
 - State of Residency at admission
 - Gender
- Entering Admissions Data
 - GPA
 - Science GPA
 - Interviews and recommendations
 - Composite scores
 - Grades in Pre-PT courses
 - Observation hours
 - Employment status
 - Degree earned
 - Rank on admissions cohort
- Academic and Clinical Performance Data During PT Program
 - Anatomy
 - Biomechanics
 - Neuroscience
 - Credit hours
 - GPA first and last semesters
 - CPI
 - Comprehensive exam scores
- Graduation and NPTE Data
 - Graduation date
 - GPA
 - NPTE score
 - Number of times to pass NPTE

Data Analysis

- Descriptive Statistics were generated for the UTC and UND data
- Data Analysis performed at UND
 - Parametric & Nonparametric studies

Results

Demographics

- Gender
 - UTC
 - Male 29.8%
 - Female 70.2%
 - UND
 - Male 30.3%
 - Female 69.7%
- Age
 - UTC
 - 23.02 y/o
 - UND
 - 22.94 y/o
- Graduates
 - UTC (2005-06 grads)
 - 47 students
 - UND (2005-07 grads)
 - 143 students

Admission Variables (means)

	UTC (n=47)	UND (n=142)	Combined (n=189)
References	93.69	95.36	94.94
Interviews	81.73	88.42	86.61
CGPA	3.52	3.48	3.50
SGPA	3.41	3.37	3.38
Composite Score	87.14	86.10	86.39

Volunteer/Work Experience (medians)

UTC	UND	Combined
105 hrs	100 hrs	100 hrs

Pre-PT Education

	UTC	UND	Combined
No degree	68.1%	65.7%	66.3%
BS degree	31.9%	34.3%	33.7%
Credit Hours at a Community College	17.87 hrs (mean)		17.87 hrs (mean)

Pre-PT Education (course grade means)

	UTC	UND	Combined
Bio I	3.46	3.08	3.17
Chem I	3.34	3.03	3.11
Physics I	3.25	3.21	3.22
Physics II	3.23	3.25	3.24
Anatomy	3.53	3.50	3.51
Physiology	3.23	3.28	3.27

Program Variables (means)

	UTC	UND	Combined
1 st yr Fall GPA	3.50	3.40	3.42
Anatomy	3.21	3.18	3.20
Anatomy Final	82.28	89.67	88.52
Neuro	3.06	3.20	3.16
Neuro Final	78.73	86.0	84.73
Biomech	3.19	3.35	3.31
Combo (Anat/Neuro/Bio)	3.15	3.25	3.23
3 rd yr Fall GPA	3.77	3.69	3.71

Outcomes

	UTC	UND	Combined
NPTE 1 st Mean Score	647	650	649
1 st pass rate	83.0%	88.4%	86.5%
2 nd pass rate	6.4%	7.0%	6.8%
3 rd pass rate	8.5%	4.7%	6.0%
Never	2.0%	0.0%	0.8%
Licensure	97.9%	100%	99%

Significance

- Best predictors for passing the NPTE
 - Science GPA
 - Cumulative GPA
- Correlations (ANOVA)
 - science GPA and 1st time NPTE pass
 - P < .05
- Not significant predictors: age, reference scores, interview scores, work/volunteer experience

Is there a significant difference in the pass rate for graduates having a degree on admissions when compared with those without a degree?

	No degree Prior to PT	Yes degree Prior to PT	Total
Pass NPTE 1 st effort "NO"	7	1	8
Pass NPTE 1 st effort "YES"	24	14	38
Total	31	15	46

Was degree prior to admissions a predictor for other outcomes?

- Means of combined grades in PT basic sciences: anatomy, neuroanatomy, biomechanics
 - With a degree 3.38
 - Without a degree 3.15
 - $p=.027$ (T-test for equality of means/Pearson correlations)
- Thus, $p<.05$.

Discussion

Purpose: Investigate relationship between admission attributes and success in academic coursework, clinical experiences, and NPTE.

Summarize findings and compare with previous work

- Previous predictors:
 - accreditation status, number of faculty with a PhD and /or EdD, years of pre-professional and professional coursework, program GPA, comprehensive examination scores, GPA, vGRE, qGRE, and race or ethnicity
- Our findings indicate science GPA and cumulative GPA are best predictors for passing the NPTE

Degree Prior to Admissions

- BS degree prior to admissions is recommended by CAPTE
- Our findings did not indicate the degree was a significant predicting factor for passing the NPTE the first time

Study Limitations

- Only 2 programs involved in the study
- Both programs are 3+3 format
- Only 2 years of data was collected for UTC and 3 years for UND

Recommendations for Future Research

- Additional years of data
- Increase program participation
- Involve different types of PT programs (i.e., 4+3)
- Look at other personal demographics
 - Race, marital status, children, working while in PT school, etc...

References

- Federation of State Boards of Physical Therapy. Available at: www.fspt.org/. Accessed January 24th, 2007.
- Mohr T, Ingram D, Hayes S, Du Z. Educational Program Characteristics and Pass Rates on the National Physical Therapy Examination. *J of Physical Ther Edu.* 2005; 19(1): 60-66.
- Kosmahl M, Edmund. Factors related to physical therapist license examination scores. *J of Physical Therapy Edu.* 2005; 19(2):52-56.
- Utzman R, Riddle D, Jewell D. Use of demographic and quantitative admissions data to predict performance on the national physical therapy examination. *Phys Ther.* 2007; 87: 1181-1193.
- Holstein BL, Zangrilli BF, Taboas P. Standardized Testing Tools to Support Quality Educational Outcomes. *Quality Management in Health Care.* October 2006; 15(4): 300-308.
- Haas RE, Nugent KE, Rule RA. The Use of Discriminant Function Analysis to Predict Student Success on the NCLEX-RN. *J Nurs Educ.* October 2004; 43(10): 440-446.
- Peak S, Amy, Sheehan H, Amy, Arnett, Stephanie. Perceived utility of pharmacy licensure examination preparation tools. *American J of Pharm Edu.* 2006;70(2): 1-5.

References

- MacMillan B, Fujita F. Predictors of success on the Dental Assisting National Board exam. *Dental Assisstant.* March 2005; 74(2): 2224-2226.
- Daly KA, Levine SC, Adams GL. Predictors for Resident Success in Otolaryngology. *J Am Coll Surg.* 2006; 202: 649-654.
- Middlemas A, David, Manning M, James, Gazzillo M, Linda, Young, John. Predicting performance on the national athletic trainers' association board of certification examination from grade point average and number of clinical hours. *J of athletic training.* 2001;36(2):136-140.
- Pringle R, Lee J. The use of Learning and Study Strategies Inventory (LASSI) as a predictor for success on part 1 of the National Board of Chiropractic Examiners Test. *J of Manipulative & Physiological Therapeutics.* 1998;21(3):164-166.
- Lawson LM, Till H. Predictors of Performance of Students From The Canadian Memorial Chiropractic College on the Licensure Examination of the Canadian Chiropractic Examining Board. *J Manipulative Physiol Ther.* 2006; 29: 566-569.

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