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Kelly M. Shields
Ohio Northern University, k-shields@onu.edu

Eunhee Kim
Ohio Northern University, e-kim@onu.edu

Jennifer K. Grundey
Ohio Northern University, j-kline.3@onu.edu

Lindsey M. Peters
Ohio Northern University, l-peters@onu.edu

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Admission Criteria as Predictors of Student Success

Kelly Shields, PharmD[1], Eunhee Kim, Ph.D.[2], Jennie K Grundey, PharmD[1], Lindsey Peters, PharmD, BCPS[1]

1. Ohio Northern University College of Pharmacy; Ada, OH 45810 2. Ohio Northern University Office of Academic Affairs; Ada, OH 45810

Objective

Evaluate the impact of various admission criteria elements as predictors of first-term college GPA and on-time graduation among PharmD students at a direct entry private university
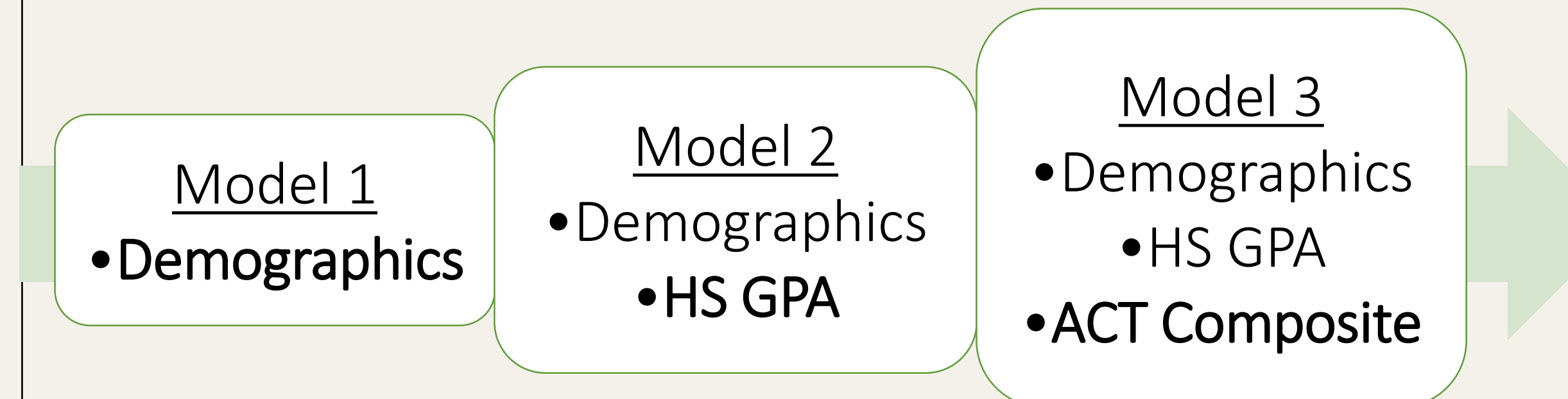
Background

- Each college of pharmacy aims to recruit quality candidates capable of completing rigorous curriculums and serving as effective pharmacists
- Currently, there is not evidence to distinguish which candidate characteristic is most predictive of student success
- In a recent white paper, AACP charged colleges of pharmacies to[1]:
    1. Review admissions criteria, scoring rubrics, and interview methodologies annually to improve admissions processes
    2. Publish annually, amend publicly, and adhere to documented application, acceptance and admissions procedures
- Prior to this study, ONU's admission process evaluated the following categories with an approximate weighted percentage:

Table 1. Previous Admissions Scoring

Criteria (Prior to Analysis)	
Cognitive Aptitude (ACT/SAT)	25%
High School Grade Point Average (HS GPA)	20%
Community Involvement and Leadership	15%
Personal Essay	8%
Behavioral Component (ex. interview)	25%
Other	7%

Methods

- Predictive models were developed to examine if the current admission criteria were significant predictors of student success defined as first-term college GPA and on-time graduation.
- Hierarchical linear regression and logistic regression analyses were conducted for the predictive models of first-term college GPA and on-time graduation, respectively

Model 1
- Demographics

Model 2
- Demographics
- HS GPA

Model 3
- Demographics
- HS GPA
- ACT Composite

Figure 1. Hierarchical Linear Modeling

Results

- The study sample consisted of 395 first-time freshman pharmacy students: fall 2007 (37.2%), fall 2008 (34.9%), fall 2009 (27.9%)

Table 2. Baseline Characteristics

Demographic	Frequency N=395
Female	251 (63.5%)
Minority	27 (6.8%)
Graduated on time	337 (85.3%)
Predictor	Mean (SD)
HS GPA	4.0 (0.3)
ACT Composite	28.8 (2.4)

Note: There were a total of 436 students in the 3 cohorts combined, and 41 students who did not have HS GPA and/or ACT (or SAT) scores were excluded from analysis.
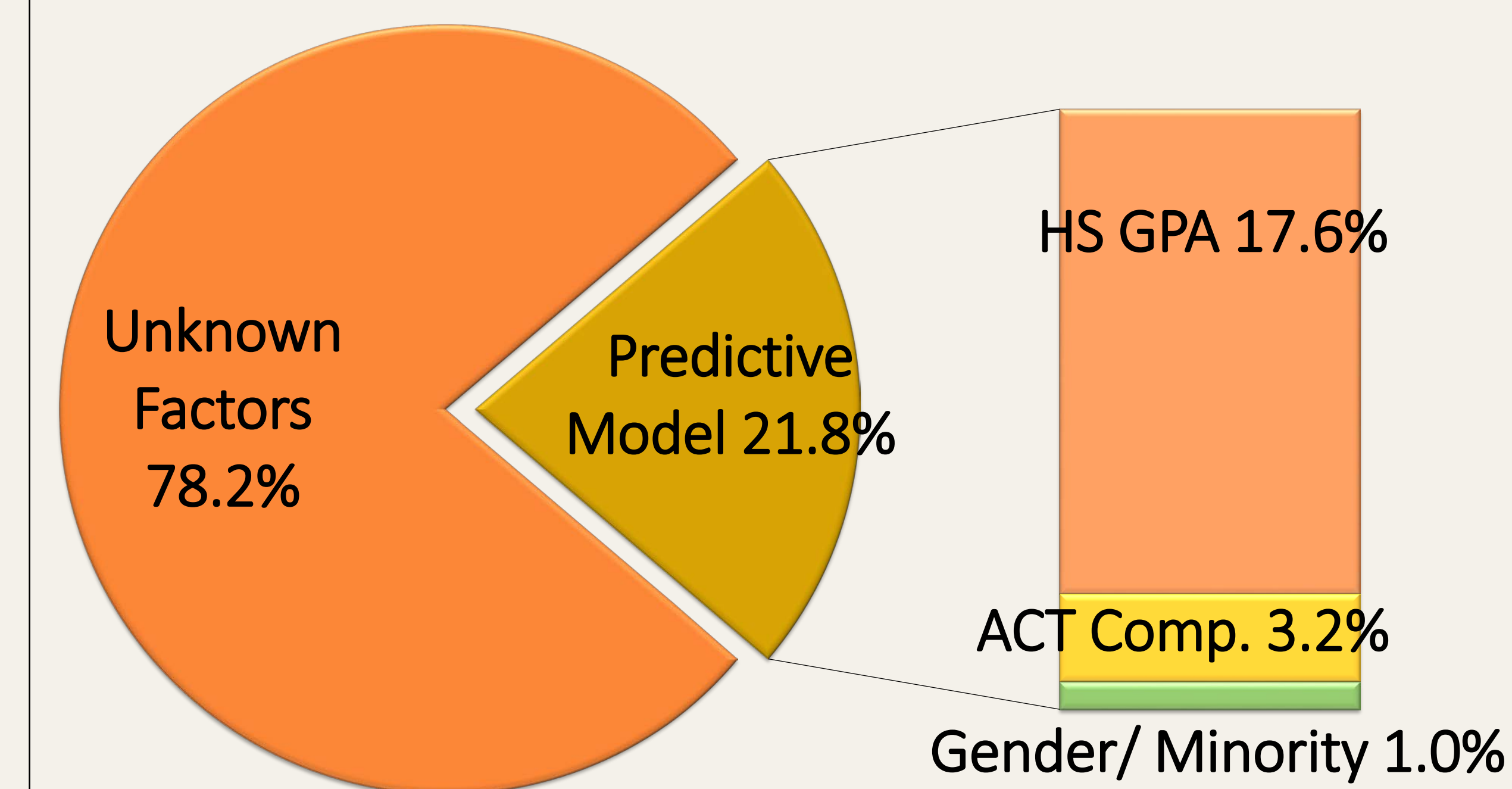
- Results from the hierarchical linear regression analysis indicated that both HSGPA and ACT Composite score were significant predictors for first-term college GPA. The final model explained 22% of the total variance in first-term college GPA, with HSGPA ($\beta=0.727$, $p<0.001$) accounting for 18% of the total variance and ACT Composite score ($\beta=0.041$, $p<0.001$) accounting for only 3%.

Results (continued)

Table 3. Predicting First Term GPA

	Model 1 β	Model 2 β	Model 3 β
Intercept	3.491	0.273	-0.630
Male	-0.083	0.037	0.019
Minority	-0.137	-0.129	-0.087
HS GPA		0.798***	0.727***
ACT Composite			0.041***
R^2	0.010	0.186	0.218
R^2 Change		0.176	0.032

β=Unstandardized Coefficients *$p<0.05$, **$p<0.01$, ***$p<0.001$

Unknown Factors 78.2%
Predictive Model 21.8%
HS GPA 17.6%
ACT Comp. 3.2%
Gender/ Minority 1.0%

Figure 2. First-Term College GPA Explained by the Predictive Model

- Results of the logistic regression method showed no substantial impact on predicting on-time graduation (only accounting for 4% of the total variance with HSGPA accounting for 2.8%)

Table 4. Predicting On-time Graduation

	Model 1 β	Model 2 β	Model 3 β
Intercept	1.966	-4.786	-5.393
Male	-0.302	-0.033	-0.046
Minority	-0.962	-0.985*	-0.953*
HS GPA		1.692**	1.644**
ACT Composite			0.028
R^2	0.013	0.041	0.041
R^2 Change		0.028	0.000

β=Unstandardized Coefficients *$p<0.05$, **$p<0.01$, ***$p<0.001$

Conclusion & Implication

- As a result of these findings, the admissions committee made adjustments to the scoring criteria for the Fall 2016 cohort.

Table 5. Adjusted Admissions Scoring

Criteria (After Analysis)	
Cognitive Aptitude (ACT/SAT)	21%
High School Grade Point Average (HS GPA)	25%
Community Involvement and Leadership	18%
Personal Essay	7%
Behavioral Component (ex. interview)	25%
Other	4%

- XXXXXX
- XXXX
- XXX

Future Directions

- Assess Fall 2010 Cohort to validate current predictive model
- Evaluate Fall 2016 cohort to determine if changes in admissions process correlate with improved student success
- Develop a more comprehensive model involving behavioral or psychosocial factors
- Explore admissions criteria as a predictor of struggle in the PharmD program as an alternate route to identify and provide resources to potential at-risk students
- XXX
- XXXX
- XXXX
- XXXX

References

1. Wall, Aljets, Ellis, et al. White Paper on Pharmacy Admissions: Developing a Diverse Workforce to Meet the Healthcare Needs of an Increasingly Diverse Society. ?