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Successful Transition from High School to Postsecondary: Targeting Policy and Practice to Prevent the need for Remedial Coursework

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Introduction

- A college-ready student should graduate high school and enter college with the expectation of passing an introductory credit-bearing course.
- Under-prepared students need to take non-credit bearing courses (remedial coursework) prior to enrolling in credit-bearing courses.
- Nationally, about 20% of students entering college report taking remedial courses (Sparks & Malkus, 2013).
- Indicates a mismatch in high school academic preparation and college academic expectations.

Introduction (2)

- Remedial coursework is costly and time-consuming (Knepler et al., 2014).
- 30% of students do not go on to take the credit-bearing course (Jones et al., 2012).
- Students requiring remediation take 4-8 months longer to graduate (Complete College American, 2012).
- Minority students and low SES students are more likely to need remediation (Attewell et al., 2006).
- Examining high school predictors enables determination of early identification of risk for remedial coursework.

Research Questions

- What are the overall rates of assessment to need remedial coursework in math, English, and reading?
- What are the associations between demographic characteristics, high school attendance, and high school assessment scores and likelihood of assessment to need remedial coursework?

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Population (High School)

- Data are from the Maryland Longitudinal Data System (MLDS)
- 2012-2013 12th grade cohort
- *N* = 63,896 students in 269 high schools
  - 50% Female
  - 36% Black; 49% White; 15% Other
  - 9% Hispanic
  - 33% FARMs
  - 2.5% ELL
  - 11.5% Special Education

Population (College)

- *N* = 30,452 (48%) enrolled in a Maryland postsecondary institution in the following academic year (2013-2014)
  - 53% Female
  - 32% Black; 50% White; 17% Other
  - 9% Hispanic
  - 27% FARMs
  - 2.3% ELL
  - 7% Special Education

Measures: Remedial Coursework

- Remedial assessments used were from academic year 2013-2014
- Math, English, and Reading assessments administered to first time undergraduates
- Coded 0/1 (0 = remediation not needed; 1 = either assessed to need remedial coursework or took remedial coursework)
- 39% needed remediation in math; 19% in English; 18% in reading
- 42% needed remediation in at least 1 subject; 21% in 2 or more subjects

Measures: High School Attendance

- Number of five-day school week equivalents a student attended during the 2012-2013 academic year
  - Calculated a ratio of days attended/days enrolled
  - Used ratio to calculate the number of weeks a student would have attended if he/she were enrolled the entire school year (36 weeks)
- *Mean* weeks attended = 33.69 (*SD* = 2.29)
- *Mean* weeks absent = 2.31 (*SD* = 2.29)

Measures: State High School Assessments

- Algebra and English assessments are included
- Created an indicator of the number of times the student failed the HSA
- 80% of students had 0 failed Algebra attempts
  - *Range* = 0-13 failed attempts
- 83% of students had 0 failed English attempts
  - *Range* = 0-10 failed attempts

Analyses

- Multi-level model (2 levels)
  - Level 1 = individual student (N = 30,452)
  - Level 2 = high school (N = 269)
- Binary event as outcome
  - 0 = Not assessed to need remediation in college
  - 1 = Assessed to need remediation in college

Results: Predicting Remedial Coursework in Math (Level 1 Model)

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	Est (*SE*)	*OR*
Intercept	0.96 (0.22)**	
Gender	0.06 (0.03) *	1.06
Black	0.48 (0.04) **	1.61
Other	-0.16 (0.05) **	0.86
Hispanic	0.59 (0.05)**	1.81
FARMs	0.25 (0.03)**	1.28
ELL	-1.24 (0.10)**	0.29
Special Ed	0.58 (0.06)**	1.79
Attendance	-0.06 (0.01)**	0.95
HSA	1.02 (0.04)**	2.77

** $p < .001$

Results: Predicting Remedial Coursework in English (Level 1 Model)

	Est (*SE*)	*OR*
Intercept	-0.78 (0.25)**	
Gender	0.09 (0.03) **	1.10
Black	0.45 (0.05) **	1.57
Other	-0.01 (0.06)	0.99
Hispanic	0.48 (0.06)**	1.62
FARMs	0.32 (0.04)**	1.38
ELL	-1.02 (0.12)**	0.36
Special Ed	0.89 (0.06)**	2.42
Attendance	-0.05 (0.01)**	0.96
HSA	1.77 (0.04)**	5.88

** $p < .001$

Results: Predicting Remedial Coursework in Reading (Level 1 Model)

	Est (*SE*)	*OR*
Intercept	-2.28 (0.27)**	
Gender	0.26 (0.04) **	1.29
Black	0.64 (0.05) **	1.90
Other	0.08 (0.06)	1.08
Hispanic	0.48 (0.07)**	1.62
FARMs	0.27 (0.04)**	1.32
ELL	-0.97 (0.12)**	0.38
Special Ed	0.87 (0.06)**	2.38
Attendance	-0.01 (0.01)**	0.99
HSA	1.70 (0.04)**	5.49

** $p < .001$

Summary of Results

- 20-30% of variability in needing remedial coursework was accounted for by high school
- Black and Hispanic students were more likely to need remedial coursework
- Students eligible for FARMs were slightly more likely to need remedial coursework
- ELL students were less likely and special ed students were more likely to need remedial coursework
- Students who failed the HSA were 2-6x more likely to need remedial coursework

Discussion

- High school factors substantially impact whether a student is assessed to need remedial coursework upon entering college.
- Findings suggest race, ethnicity, and SES disparities in assessed need for remedial coursework.
- Current general education and special education services are not adequately preparing students for entry level college coursework.
- Finding that ELL students were less likely to need remedial coursework was unexpected. It is possible that the highest achieving ELL students enrolled in college.

Policy Implications and Challenges

- Greater focus on college readiness is needed at the state, district, and high school levels.
- College selectivity and expansion of college access likely play a role.
- More federal, state, and local funding (or re-allocation of current resources) and programmatic supports are needed to prepare high school students for college.
- Identification of early risk factors for being under-prepared enables targeted services in high school. However, under-resourced high schools must be able to implement such assessment and services.

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