
PSAT™ 8/9 Predictive Validity Evidence

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Overview

The PSAT 8/9, administered in the eighth and/or ninth grades in a school-based administration, is the earliest opportunity students have to engage with the SAT Suite of Assessments. The PSAT 8/9 includes a Reading and Writing section and a Math section and results allow educators to evaluate each student's college and career readiness and determine which knowledge areas and skills need more work. Having these insights early in high school allows educators to intervene in time to get more students on track for success. PSAT 8/9 scores can also expand AP course access by identifying students who are ready for certain AP® courses. In addition, when students receive their PSAT 8/9 scores, they receive customized guidance to help them explore careers that match their interests and skills and information to help them search for colleges.

Like the SAT®, the PSAT 8/9 measures the skills and knowledge that students are learning in school and that matter most for college and career readiness. As such, this brief research study will gather PSAT 8/9 validity evidence by examining predictive score relationships with later educational outcomes in high school, including PSAT/NMSQT® scores, SAT scores, high school grade point average (HSGPA), and average AP exam scores. This information builds on the large body of existing evidence already showing clear, strong positive relationships between SAT scores and key college outcomes, including course grades in the matching academic domain (Westrick, Marini, Shmueli, Young, Shaw, & Ng, 2020; Westrick, Marini, Young, Ng, & Shaw, 2023), retention through each year of college (Marini, Westrick, & Shaw, 2021), cumulative grade-point average through each year of college (Marini, Westrick, Young, & Shaw, 2024), and degree completion (Westrick, Marini, & Shaw, 2022a). The strong predictive nature of the SAT with regard to student performance and completion is also evident at two-year institutions and for students attending career/technical education (CTE) programs (Westrick, Marini, & Shaw, 2022b), as well as convergent validity evidence for the digital SAT with PSAT/NMSQT Total Score, HSGPA, and average AP Exam score (Westrick, Marini, & Shaw, 2022).

Sample

In order to be included in the study sample, students had to have taken the PSAT 8/9 in 2018 or 2019 (n=1,339,717) and have either a PSAT/NMSQT score (n=885,005), SAT score (n=750,208), HSGPA (n=664,137), or an Average AP Exam score (n=476,941).

Measures

PSAT 8/9 Score (240-1440) – increments of 10. PSAT 8/9 scores were obtained from College Board's database. The PSAT 8/9 scores included in this study are PSAT 8/9 Total Score, sample mean of 860

(SD=176), PSAT 8/9 Evidence-Based Reading and Writing (ERW) Section Score (120-720 scale) sample mean of 432 (SD=95), and PSAT 8/9 Math Section Score (120-720 scale) sample mean of 428 (SD=92).

PSAT/NMSQT Score (320 to 1520) —increments of 10. PSAT/NMSQT scores were obtained from College Board's database and matched to each student with PSAT 8/9 scores in this study. The PSAT/NMSQT scores included in this study are PSAT/NMSQT Total Score, sample mean of 947 (SD=192), PSAT/NMSQT Evidence-Based Reading and Writing (ERW) Section Score (160-760 scale) sample mean of 480 (SD=108), and PSAT/NMSQT Math Section Score (160-760 scale) sample mean of 467 (SD=94).

SAT score (400 to 1600 scale)—increments of 10. SAT scores were obtained from College Board's database and matched to each student with PSAT 8/9 scores in this study. The SAT scores included in this study are SAT Total Score, sample mean of 1023 (SD=209), SAT Evidence-Based Reading and Writing (ERW) Section Score (200 to 800 scale) sample mean of 519 (SD=105), and SAT Math Section Score (200 to 800 scale) sample mean of 504 (SD=113).

High School GPA (HSGPA). Students' self-reported HSGPA was obtained from the SAT Questionnaire when they registered for the SAT and is reported on a 12-point scale, ranging from 0.00 (F) to 4.33 (A+). The HSGPA measure in the current study has a sample mean of 3.40 (SD=0.70)

Average AP Exam Score. AP Exam scores were obtained for each student in the sample, and Average AP Exam score is the average score for all of the AP Exams that a student took. This ranged from 1 to 5, with a sample mean of 2.46 (SD=1.08).

Methodology

Correlational analyses were conducted, analyzing relationships between students' PSAT 8/9 scores with four other educational measures of interest: PSAT/NMSQT score, SAT score, HSGPA, and Average AP Exam score. To maximize sample sizes, we conducted separate analyses for each of the four measures of interest. In keeping with best practices (AERA, APA, NCME, 2014), correlations were corrected for multivariate range restriction (Lawley, 1943) using the full cohort of students who took the PSAT 8/9 in 2018.

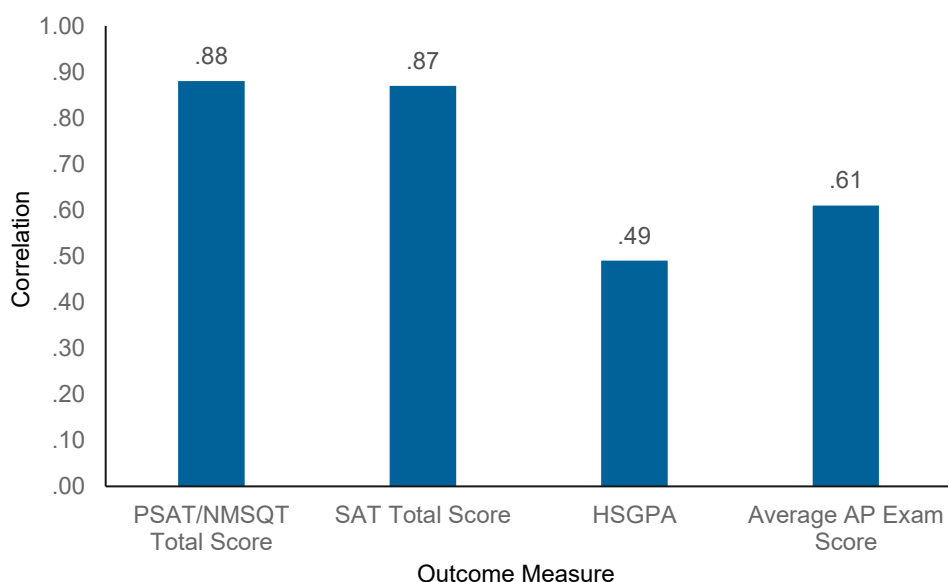
Findings

Results from the correlational analyses are presented in Table 1. The corrections for range restriction were minor for the PSAT 8/9 correlations with PSAT/NMSQT scores, SAT scores, and HSGPA, which was expected given that the vast majority of students in the eighth and ninth grades persist through high school and would have scores and grades available. Fewer students have access to AP courses, making this sample the most restricted, hence the larger adjustments for range restriction. However, even these adjustments were much smaller than those typically found in predictive validity analyses conducted at undergraduate institutions. Figure 1 illustrates the key results. Strong positive relationships were found between PSAT 8/9 scores and PSAT/NMSQT scores, SAT scores, and average AP Exam scores. Moderately strong positive results were found between PSAT 8/9 scores and HSGPA, and these relationships were similar to SAT relationships with HSGPA (e.g. Marini, Westrick, Young, & Shaw, 2022).

Table 1. Adjusted (Raw) Correlations between PSAT 8/9 Scores and later Academic Outcomes

Outcome Measures	N	Predictors		
		PSAT 8/9 ERW	PSAT 8/9 Math	PSAT 8/9 Total
PSAT/NMSQT ERW	885,005	.85 (.85)	.75 (.75)	.86 (.86)
PSAT/NMSQT Math	885,005	.72 (.73)	.80 (.80)	.82 (.82)
PSAT/NMSQT Total	885,005	.83 (.84)	.81 (.81)	.88 (.88)
SAT ERW	750,208	.83 (.83)	.75 (.74)	.85 (.84)
SAT Math	750,208	.73 (.73)	.82 (.81)	.83 (.83)
SAT Total	750,208	.82 (.81)	.82 (.81)	.87 (.86)
HSGPA	664,137	.46 (.46)	.46 (.45)	.49 (.48)
Average AP Exam Score	476,941	.59 (.54)	.56 (.51)	.61 (.57)

Figure 1. Adjusted Correlations for PSAT 8/9 Total Score with PSAT/NMSQT Total Score, SAT Total Score, HSGPA, and Average AP Exam Score



Conclusion

Results of these correlational analyses show that, as expected, PSAT 8/9 scores have strong positive relationships with later educational outcomes in high school, including PSAT/NSMQT scores, SAT scores, and average AP Exam scores; and moderately strong relationships with HSGPA (similar to SAT relationships with HSGPA). As the SAT Suite of Assessments are vertically scaled, these PSAT 8/9 predictive results were largely expected, as this study builds on the extensive aforementioned body of evidence showing strong positive SAT score relationships with key college outcomes.

References

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