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Association Between SAT Performance and Pursuit of Healthcare-Related Majors Among Rural Texas High School Students: The Moderating Role of Accessible Reading-Focused SAT Preparation Programs

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ADMINISTRATIVE INFORMATION

Support - Baylor University.

Review Stage at time of this submission - Formal screening of search results against eligibility criteria.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 9 March 2026 and was last updated on 9 March 2026.

INTRODUCTION

Review question / Objective Does achieving an SAT score below the 50th percentile correlate with pursuing a healthcarerelated major in a four-year institution among high school juniors and seniors in rural Texas,with participation in an accessible reading SAT prep program as a potential effect modifier?

Rationale Standardized testing, especially the SAT, remains a major factor influencing four-year college admissions and scholarship eligibility. Students scoring below national or state medians may experience reduced academic confidence, limited admissions options, or altered career trajectories (Friedman et al., 2025). Rural students often face reduced access to structured academic preparation programs, especially reading focused SAT preparation, which may disproportionately impact performance (Buchmann, Condron, & Roscigno, 2010).
Rural communities in Texas face persistent shortages in healthcare professionals, contributing to reduced healthcare access and poorer health outcomes (Texas Rural Health Association, 2024). Increasing representation of rural students in healthcare professions is widely recognized as a strategy to address workforce disparities. However, barriers to entry into healthcare-related academic pathways often begin at the high school level.
Despite this, little is known about whether scoring below the 50th percentile (College Board, 2021) on the SAT is associated with decreased likelihood of pursuing a healthcare related major at a four-year institution. Furthermore, it is unclear whether participation in accessible reading SAT prep programs modifies this association.
This review is needed to identify whether academic performance thresholds contribute to healthcare pipeline disparities and whether structured SAT reading support represents a modifiable factor that could justify a targeted rural intervention.

Condition being studied We are trying to find the correlation between increased access to SAT

preparation, and the relationship between SAT score and pursuing a health-care major.

METHODS

Search strategy Full draft search strategy for at least ONE database:
Database : PubMed
("SAT" OR "Scholastic Aptitude Test")
AND (percentile OR "below average" OR performance)
AND (rural OR "rural students" OR "rural education")
AND ("healthcare major" OR "health sciences" OR "pre-med" OR nursing OR "allied health")
AND ("four-year college" OR university enrollment")
AND ("SAT preparation" OR "test prep" OR "reading intervention").
Other sources (hand-searching, reference lists, grey literature, etc.):
Reference lists of all included articles will be reviewed. Forward citation searching will be conducted in Google Scholar and Scopus to find new articles. Key journeys will be hand-searched, including Journal of Rural Health, Medical Education Online, Rural Education Quarterly, etc. Relevant organizational websites will be reviewed; such as College Board, Health Resources and Services, National Center for Educational Statistics, etc. Grey literature will be identified and avoided.

Participant or population
11th grade level students
Males and Females
Ages: 16-17
Rural Classification: <5000 population
GPA range (2.00-4.00)
Socioeconomic indicators (free/reduced lunch status, parental education, household income if available).

Intervention To find the correlation between increased access to SAT preparation, and the relationship between SAT score and pursuing a health-care major.
Include structured academic support specifically intended to improve college readiness or SAT performance, such as school-sponsored SAT prep courses, free or low-cost tutoring, online SAT preparation platforms provided by schools or programs (all based on the reading section of the SAT), college advising sessions, and healthcare career pathway or pre-health exposure programs that include academic support. Include studies published from 2005-present (to reflect modern SAT structure and contemporary college admissions practices), including government reports, peer-reviewed articles, with quantitative data.
Exclude interdependent self-study without structured program. General classroom instruction not specific to SAT prep. Programs focused only on extracurricular exposure. ACT-only studeies without SAT equivalency data.

Comparator Juniors/seniors in rural Texas with limited access to academic resources—lack of SAT prep courses, lack of access to tutoring, and lack of academic support and advice.
Juniors and seniors in urban states that have received ≥ 50th percentile
Include students attending rural schools outside of Texas, with no formal SAT preparation programs, limited or no access to tutoring or college advising, lack of organized college readiness services, or geographic or technological barriers that restrict access to academic support.
Exclude groups where students receive structured SAT preparation, consistent tutoring, comprehensive college counseling, or where access levels to resources are not clearly described.

Study designs to be included Study designs included: Cohort studies (prospective or retrospective). Cross-sectional studies with linked postsecondary data. Case-control studies examining major selection. Secondary database analysis.

Eligibility criteria Study designs excluded: Randomized controlled trials unrelated to SAT or healthcare major. Purely qualitative research. Case reports. Editorials and narrative reviews.
Language Restrictions: English only
Publication date limits (date range of studies): 2016-2026
Publication type limits (e.g., peer-reviewed only?): Peer-reviewed journal articles, Government reports with quantitative data, and full text publications only.

Information sources PubMed/MEDLINE
Embase
PsycINFO
CINAHL
ERIC
Cochrane Library
Scopus
Web of Science
Other.

Main outcome(s) Pursuit or declaration of a health-care related major at a four-year institution

(e.g., nursing, pre-medical, public health, or allied health programs).

Additional outcome(s) Persistence in health-related majors, college matriculation patterns, and changes in SAT performance where reported.

Quality assessment / Risk of bias analysis Risk of bias tool used: Newcastle-Ottawa Scale (NOS)
Assessment will be performed independently by two reviewers
Disagreement resolution process:
Two reviewers will independently assess each included study. Disagreements will first be resolved through discussion and consensus. Consensus WILL be reached.

Strategy of data synthesis Narrative Synthesis
Approach:
Why no meta-analysis
Heterogeneity in rural definitions is anticipated, characterization of preparation program, outcome definitions, and exposure measurement.
Grouping methods
Study design
Population characteristic
Outcome type
Comparison
Directions of the associations
Magnitudes
Consistency
Risk of Bias
High-Risk Studies
Study quality
Gap
Examples:
Understudied populations
Inconsistent results
Weak confounder control
Limited geographic representation
Small sample sizes
Lack of longitudinal data.

Subgroup analysis SAT score category: students scoring below the 50th percentile compared with students scoring at or above the 50th percentile.
Preparation program participation: students who participated in an accessible SAT reading preparation program compared with those who did not participate.
Gender: male vs. female students when reported.
Race/ethnicity: subgroup analyses based on racial or ethnic categories reported within included studies.
Socioeconomic status: comparisons based on indicators such as free or reduced-price lunch eligibility or parental education level.
Rural classification: differences across definitions of rural school settings used in included studies.
Study design: comparisons between cross-sectional and longitudinal observational studies.

Sensitivity analysis Risk of bias exclusion: repeating the synthesis after excluding studies rated as high risk of bias based on the Newcastle-Ottawa Scale.
Study design restriction: limiting analyses to cohort studies to assess whether longitudinal evidence changes the direction or magnitude of associations.
Outcome definition restriction: including only studies that clearly define health-care related majors using standardized or institutionally documented major classifications.
Exposure definition restriction: including only studies that explicitly define SAT performance relative to percentile thresholds.
Geographic restriction: limiting analyses to studies conducted specifically within rural Texas populations where available.

Language restriction English Only.

Country(ies) involved United States.

Keywords SAT; rural; healthcare major; four-year college; test prep; education; health sciences.

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