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Expanded In-School Instructional Time and the Advancement of Health Equity: A Community Guide Systematic Review

Yinan Peng, PhD, MPH,

Community Guide Branch, Division of Public Health Information Dissemination

Ramona K. C. Finnie, DrPH,

Community Guide Branch, Division of Public Health Information Dissemination

Robert A. Hahn, PhD, MPH,

Community Guide Branch, Division of Public Health Information Dissemination

Benedict I. Truman, MD, MPH,

Office of the Associate Director for Science, National Center for HIV/AIDS, Viral Hepatitis, STD & TB Prevention

Robert L. Johnson, MD,

Centers for Disease Control and Prevention (CDC), Atlanta, Georgia; Rutgers New Jersey Medical School, Newark, New Jersey

Jonathan E. Fielding, MD, MPH, MBA,

UCLA Fielding School of Public Health, Los Angeles, California

Carles Muntaner, MD, PhD,

University of Toronto, Toronto, Canada

Mindy T. Fullilove, MD, MS,

Columbia University, New York, New York

Xinzhi Zhang, MD, PhD,

National Institute on Minority Health and Health Disparities, National Institutes of Health, Washington, District of Columbia

the Community Preventive Services Task Force

Abstract

Expanded in-school instructional time (EISIT) may reduce racial/ethnic educational achievement gaps, leading to improved employment, and decreased social and health risks. When targeted to low-income and racial/ethnic minority populations, EISIT may thus promote health equity.

Community Guide systematic review methods were used to search for qualified studies (through February 2015, 11 included studies) and summarize evidence of the effectiveness of EISIT on

Correspondence: Robert A. Hahn, PhD, MPH, Community Guide Branch, Division of Public Health Information Dissemination, Centers for Disease Control and Prevention, 1600 Clifton Rd, MS E-69, Atlanta GA 30329 (rah1@cdc.gov).

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educational outcomes. Compared with schools with no time change, schools with expanded days improved students' test scores by a median of 0.05 standard deviation units (range, 0.0–0.25). Two studies found that schools with expanded day and year improved students' standardized test scores (0.04 and 0.15 standard deviation units). Remaining studies were inconclusive. Given the small effect sizes and a lack of information about the use of added time, there is insufficient evidence to determine the effectiveness of EISIT on academic achievement and thus health equity.

Keywords

determinant of health; education; expanded in-school time; health equity; in-school instruction time

Context

Educational achievement is an established determinant of long-term health.^{1,2} In the United States, inequalities in both educational achievement and health outcomes by race, ethnicity, and income are substantial and persistent.^{3–12} It has been found that students from low-income families experience learning loss during summer breaks, probably because they lack resources for educational summer activities available to more affluent students.¹³ Although after-school and summer-school programs can improve educational achievement, their reach is often limited since participation is often voluntary.¹⁴

With expanded in-school instructional time (EISIT), students are required to have a longer learning day and/or year. The federal government funds EISIT as a means of improving academic achievement through the School Improvement Grants program. The postulated benefits of added time are also recognized in Every Student Succeeds Act of 2015. Both have recommend EISIT as one way to improve learning in low-achieving schools.

Conceptual approach and analytic framework

Increased instructional time may increase opportunities for learning and improving skills for learning, which would result in increased cognitive performance and achievement (see Appendix Figure 1). By increasing time spent in school, students would stay in a safe environment longer with opportunities for improved nutrition and increased socioemotional learning. These conditions could lead to better emotional competence and social interaction skills and decreased delinquency. Better cognitive and socioemotional skills would allow students to improve educational outcomes. Reduced free time for students may lead to decreased childcare costs and increased work time for parents, thus improved income and its health benefits. If expanded in-school learning time programs are directed to high-risk communities, health equity is likely to improve. Increased instructional time may also lead to increased staff and student fatigue, less recreational and family time, and fewer opportunities for informal learning.

Our primary research question asks whether EISIT improves academic achievement, in particular the achievement of low-income and minority students. Because academic achievement is an established determinant of long-term health, it is used in this review as an

outcome indicating health benefits. To assess our central question, we included multicomponent interventions in which interventions other than expanded time were also included, as long as study design allowed the distinction of the effects of expanded time from other intervention components. Our secondary research questions ask whether EISIT affects outcomes such as socioemotional learning or substance abuse and whether EISIT effects vary by intervention characteristics.

Evidence Acquisition

Methods for conducting Community Guide systematic reviews have been published.¹⁵ Briefly, the review team collected information on study methods, results, and interpretation. The team also assessed study design and threats to internal and external validity; publications with more than 4 threats to validity were excluded because of limited quality of execution. Detailed information about the review's search strategy, inclusion criteria, and analysis methods can be found on the Community Guide website (available at <https://www.thecommunityguide.org/findings/healthequity-expanded-school-learning-time>).

Findings

Search results are shown in Appendix Figure 2. Two earlier systematic reviews were found and used as sources of review studies.^{16,17} The review team also conducted an update search from 2009 to February 2015. Thirteen studies met our inclusion criteria—7 from the published reviews and 6 from the update search. Two studies^{18,19} were excluded because of limited quality of execution, leaving 11 included studies^{20–30} in the current review. A detailed summary of the included studies is available at the Community Guide Web site.

Detailed study and intervention characteristics can be found in Supplemental Digital Content Appendix Table 1 (available at <http://links.lww.com/JPHMP/A504>). The majority of studies were conducted in the United States and examined the lengthening of school days in public schools in an urban setting. Only 4 studies^{21,28–30} reported on how the added time was used, while the others reported total hours added without distinction between allocated and instructional time.³¹ Detailed study population characteristics can be found in Supplemental Digital Content Appendix Table 2 (available at <http://links.lww.com/JPHMP/A505>).

Impact on student achievement

Expanding the school year in a full-day kindergarten increased students' mathematics and reading scores, and greater improvements were seen with more days added.²⁶ Charter schools that expanded their school day and year had small increases in standardized test scores (0.04 standardized mean difference [SMD]²⁴ and 0.15 SMD²⁸) when compared with traditional public schools (Figure).

Analysis of data from a nationwide survey showed that a longer school year (above 180 days) had a negative impact on overall student achievement.²⁵ The best results were achieved with 7 classes per day, each class lasting 45 minutes or less. Lower-achieving students benefitted more than higher-achieving students from having more classes per day or a longer school year.

Three studies found that expanding school time did not significantly change test scores for mathematics,^{20,23,27} English,^{20,23,27} or science.²³

Secondary outcomes of interest: Impact on student behaviors

Three^{22,27,30} of the included studies assessed impact of expanded in-school time programs on student delinquent behaviors. Bishop and colleagues²² reported reduced incidence of offenses measured as days in detention (males: –18%; females: –11%) and the total number of offenses that can lead to suspension (males: –22%; females: –23%). Two studies^{27,30} found no intervention effect on delinquent behaviors. Two other studies^{23,27} found that expanding in-school time did not affect students' attendance.

Discussion

Summary of findings

This body of evidence provided insufficient evidence to determine the effectiveness of expanded in-school time programs in improving academic achievement, an established determinant of long-term health. Small effect estimates suggest that there is no clear relationship between expanded in-school time and academic achievement.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Implications for Policy & Practice

- Interpretation of review findings is limited by the available evidence, especially the lack of information on how the added time is used. Time added to the school calendar can be “allocated time” (total time in school), “class time” (total time in class), “instructional time” (time devoted to instruction), or academic “learning time” (time students gain and retain subject knowledge).³¹ Conceptually, increases in academic learning time might lead to improved learning, but academic time is difficult to measure; increases in allocated time might not translate into increased academic time, but it is easiest to measure.
- More research and better reporting are needed to assess the impact of added school time on student achievement.
 - The included studies in this review mostly reported allocated time added, but added instructional or academic time may still turn out to be critical in the reduction of educational gaps. Researchers assessing impact of added time on student achievement should specify how added time is used.
 - It is likely that there are optimal time arrangements for effective learning, that is, an optimal class length, number of repetitions, and spacing of repetitions, that effectively instill learning in students. There are likely to be lower and upper thresholds in the effects of school hours. Timing effects may vary by subject matter, student grade level, and other factors. Expanding in-school time without considering these factors might not produce efficient and effective use of the added time.
- The current review reported small and inconsistent effect estimates, suggesting that expanded school time alone might not be enough to produce meaningful improvements in students’ achievement. Two^{20,24} of the included studies examined school policies in combination with expanded time. A survey of New York statewide charter schools found that 5 policies together were associated with improved achievement: teacher feedback, use of data to guide instruction, tutoring, added instructional time, and a culture of high expectations.²⁴

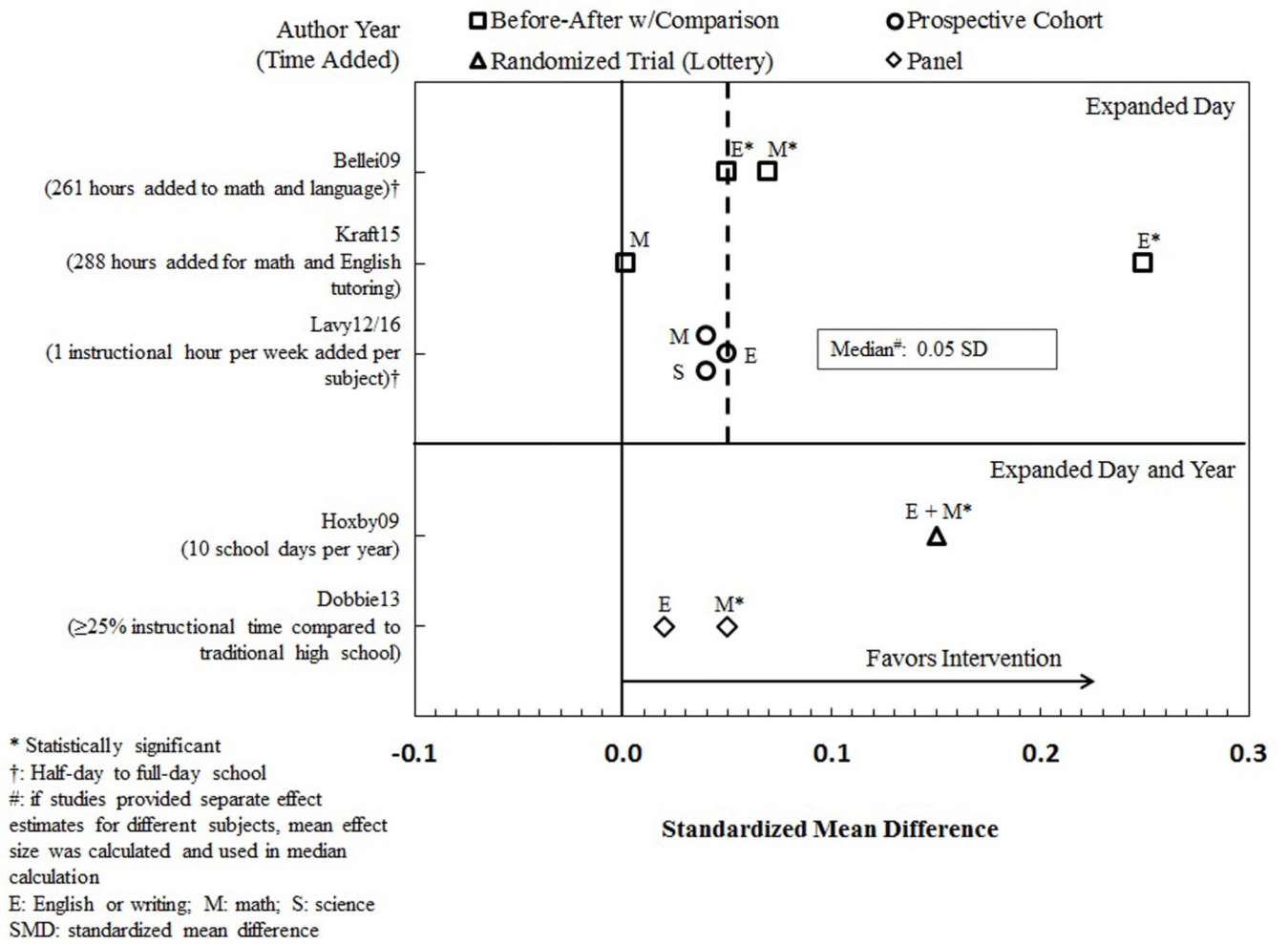


FIGURE.
 Impact of Expanded School Time on Student Achievement and Grade Point Average