

A Low-Cost, Grab-and-Go Breakfast Intervention for Rural High School Students: Changes in School Breakfast Program Participation Among At-Risk Students in Minnesota

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ABSTRACT

Objective: Evaluate the impact of a grab-and-go component embedded within a larger intervention designed to promote *School Breakfast Program* (SBP) participation.

Design: Secondary data analysis.

Setting: Rural Minnesota high schools.

Participants: Eight schools were enrolled in the grab-and-go only intervention component. An at-risk sample of students ($n = 364$) who reported eating breakfast ≤ 3 d/wk at baseline was enrolled at these schools.

Interventions: Grab-and-go style breakfast carts and policies were introduced to allow all students to eat outside the cafeteria.

Main Outcome Measures: Administrative records were used to determine percent SBP participation (proportion of non-absent days on which fully reimbursable meals were received) for each student and school-level averages.

Analysis: Linear mixed models.

Results: School-level increases in SBP participation from baseline to the school year of intervention implementation were observed for schools enrolled in the grab-and-go only component (13.0% to 22.6%). Student-level increases in SBP participation were observed among the at-risk sample (7.6% to 21.9%) and among subgroups defined by free- or reduced-price meal eligibility and ethnic or racial background. Participation in SBP increased among students eligible for free or reduced-price meals from 13.9% to 30.7% and among ineligible students from 4.3% to 17.2%.

Conclusions and Implications: Increasing access to the SBP and social support for eating breakfast are effective promotion strategies.

Key Words: breakfast, meals, outcome assessment, schools, students (*J Nutr Educ Behav.* 2017; ■:1-8.)

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INTRODUCTION

A growing body of research documents the importance of eating breakfast for adolescent health and academic success.¹⁻³ Eating breakfast provides an opportunity to improve overall nutrient intake and has been linked to higher adolescent consumption of healthful dietary components such as iron, fiber, and calcium.^{2,3} Young people who consume breakfast tend to have better mental health and lower risk of overweight.^{1,3,4} Furthermore, there is evidence that skipping breakfast has a detrimental impact on alertness, attention, memory, problem solving, mathematics, and other aspects of cognitive performance.¹ Participation in the

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US Department of Agriculture *School Breakfast Program* (SBP) is therefore likely to promote academic achievement and has been linked to fewer psychosocial problems and reduced absenteeism.¹

Despite the many benefits of eating breakfast, this meal is frequently skipped by a high percentage of US adolescents. National surveillance data indicate that approximately 6 out of 10 high school students do not eat breakfast every day and 14% of young people this age skip breakfast most or all days of the week.⁵ The prevalence of skipping breakfast is disproportionately high among older adolescents and marginalized groups of young people such as adolescents in lower-income households and those who identify with an ethnic or racial background other than non-Hispanic white.¹ For example, the prevalence among high school students of skipping breakfast on most days is 12% for non-Hispanic white adolescents, 15% for Hispanic adolescents, and 18% for black adolescents.⁵ Little is known regarding how the eating behaviors of rural adolescents compare with those of their urban counterparts⁶; however, the prevalence of overweight is greater among rural students, and related research showed that rural schools were less likely than urban ones to report having strong policies and practices to promote healthy eating behaviors.⁷⁻⁹

Promoting participation in the SBP has particular potential to reduce existing disparities in adolescent nutrition and academic outcomes. Although low-income adolescents and those in families with parents who have lower levels of education are more likely to skip breakfast, these groups of young people may be more likely to eat a no-cost or low-cost breakfast at school.¹⁰⁻¹³ The SBP is an underused food support program; just over half of students who received a free or reduced-price school lunch also participated in the SBP.¹⁴ Because federal regulations require that a balanced selection of healthful foods be provided as part the SBP, it also represents a source of breakfast food guaranteed to provide key nutrients.¹⁵ There is a need to evaluate interventions to promote SBP participation that are feasible for implementing in rural schools with potentially limited existing resources to promote healthy

eating and incorporate strategies relevant to low-income and ethnically/racially diverse young people.

Lack of time to eat breakfast before the start of classes and lack of appetite in the morning are common barriers to SBP participation among diverse groups of young people.^{16,17} Recommended strategies for addressing these barriers and promoting SBP participation are allowing students to purchase breakfast from a grab-and-go style cart later in the morning and eating breakfast outside the cafeteria.¹⁸⁻²⁰ Evaluation efforts suggest that these strategies were feasible and well accepted,²¹⁻²⁴ but most evaluations to date have been out in elementary schools and middle schools, and few evaluations have been carried out in rural areas.^{18,19,23-25}

The current study was designed to build on existing findings by evaluating the grab-and-go component of an intervention for rural high schools and guide the efforts of schools lacking financial resources to implement a more intensive, multicomponent approach such as the full *Project BreakFAST* intervention.²⁵ The full-intensity *Project BreakFAST* intervention used multiple approaches to increase student access to school breakfast and address normative and attitudinal beliefs using SBP-focused marketing.^{25,26} The first aim of the current study, which focused on implementing the grab-and-go component of *Project BreakFAST*, was to examine the impact of its implementation on school-level changes in SBP participation. The second aim was to examine the impact of the grab-and-go component among students with irregular breakfast habits, to assess whether changes in SBP participation were related to eligibility for free or reduced-price school meals and ethnicity or race. In addition, the researchers compared the impact of the grab-and-go component on school-level participation in the SBP with the impact of the full-intensity and more resource-intensive *Project BreakFAST* intervention approach to promoting breakfast consumption.

METHODS

Study Design and School Randomization

This secondary analysis used data from *Project BreakFAST (Fueling Academics*

and Strengthening Teens), a group-randomized trial aimed at increasing SBP participation through implementing policy and environmental supports in rural Minnesota high schools.²⁶ A convenience sample of 16 schools was recruited through an open invitation posted on the Minnesota School Nutrition Association website and electronic mailing list. Several informational webinars were also conducted for school personnel (eg, principal, food service director) who responded to the invitation. Schools were evaluated for study inclusion based on their location outside the 7-county metropolitan region; not having a grab-and-go reimbursable school breakfast option; and having low participation (<20%) in the SBP. Further consideration was also given to enrollment size (>500 students) and the ethnic and racial composition of students (at least 10% identified as Hispanic or a race other than white).

Eight schools were randomly assigned to implement the full-intensity intervention; the remaining schools were asked to implement only the grab-and-go component on a delayed schedule. For logistical and budgetary reasons, schools were also divided into 2 implementation waves before random assignment (although 3 additional schools were recruited after randomization for wave 1 but before randomization for wave 2).²⁶ Implementation was carried out in waves aligned with successive school years. Four wave 1 schools implemented the full-intensity intervention during the 2013–2014 school year whereas the 4 other wave 1 schools served as a control condition during 2013–2014 and then implemented the grab-and-go component during the 2014–2015 school year. Likewise, 4 wave 2 schools implemented the full-intensity intervention in 2014–2015 whereas the 4 other wave 2 schools served as a control condition during 2014–2015 and then implemented the grab-and-go component during the 2015–2016 school year. Additional details of the design and randomization process are published elsewhere.²⁶ The University of Minnesota Institutional Review Board Human Subjects Committee approved all study procedures. A memorandum of understanding was developed with each school to outline roles and responsibilities and was signed by the

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