

Top Tier Evidence Initiative:

Evidence Summary for First-Grade Classroom Prevention Program (Good Behavior Game plus Enhanced Academic Curriculum)

HIGHLIGHTS:

- **Intervention:** A first-grade program that combines a classroom management strategy (the Good Behavior Game) with an enhanced academic curriculum in language arts and math.
- **Evaluation Methods:** A well-conducted randomized controlled trial in high-poverty Baltimore schools.
- **Key Findings:** At age 13, reduced initiation of smoking by 26% and of hard drugs by more than half. At age 19, increased the likelihood of high school graduation by 21% and of college attendance by 62%.
- **Other:** A study limitation is its relatively small, geographically-concentrated sample – 18 classrooms in one school district. Thus, replication of these findings in a second trial, in another setting, would be desirable to confirm the program’s effectiveness across various settings where it might normally be implemented.

I. The Top Tier initiative’s Expert Panel has identified this intervention as *Near Top Tier*.

The Panel finds that this intervention meets the “Near Top Tier” evidence standard, defined as:

Interventions shown to meet almost all elements of the Top Tier standard (i.e., well-conducted randomized controlled trials... showing sizable, sustained effects), and which only need one additional step to qualify. This category includes, for example, interventions that meet all elements of the standard in a single site, and just need a replication trial to confirm the initial findings and establish that they generalize to other sites.

II. Description of the Intervention:

The Classroom Prevention Program is a first-grade intervention that combines (i) the Good Behavior Game – a classroom management strategy for decreasing disruptive behavior; and (ii) an enhanced academic curriculum designed to improve students’ reading, writing, math, and critical thinking skills.

The Good Behavior Game rewards positive group, as opposed to individual, behavior. The teacher initially divides her class into three heterogeneous teams, and reads the Game’s rules to the class. Teams receive check marks on a posted chart when one of their members exhibits a disruptive behavior (e.g., talking out of turn, fighting). Any team with four or fewer check marks at the end of a specified time – ranging from 10 minutes at the start of the year to a full day later on – is rewarded. Tangible rewards are used early in the year (e.g., stickers, activity books). As the year progresses, intangible rewards (e.g., designing a bulletin board), delay in reward delivery, and fading of rewards are used to generalize behaviors. The Game is supplemented by weekly teacher-led class meetings designed to build children’s skills in social problem solving.

The enhanced academic curriculum supplements the existing curriculum with activities that include interactive read-aloud periods, journal writing, dramatic presentation of written work, critical analysis of issues from students’ daily life, and the Mimosa math program (which emphasizes use of manipulatives, such as clock faces and pattern blocks, to solve math problems).

Additional strategies are used for students who do not respond to the group intervention, such as providing tutoring to academically-struggling students, and forming single-member Good Behavior Game teams for students who remain disruptive, to provide individualized incentives for good behavior.

Teachers receive approximately 60 hours of training in the program prior to implementation, as well as supervision and feedback from program experts on a monthly basis during the year. The program's training and content is standardized; its cost is approximately \$500 per student in 2010 dollars.

[Click here for a link to the program manual.](#)

III. Evidence of Effectiveness

This summary of the evidence is based on a systematic search of the literature, and correspondence with leading researchers, to identify all well-conducted randomized controlled trials of the Classroom Prevention Program. Our search identified one such trial. What follows is a summary of the study design and the program's effects on the main outcomes measured in the study, including any such outcomes for which no or adverse effects were found.¹ All effects shown are statistically significant at the 0.05 level unless stated otherwise.

Overview of Study Design: Randomized controlled trial of the Classroom Prevention Program in nine high-poverty Baltimore schools, conducted 1993-2009.

This was a randomized controlled trial of 18 first grade classrooms, containing 449 students, in nine high-poverty Baltimore public schools. Within each school, one teacher and classroom were randomly assigned to implement the Classroom Prevention Program for the full first-grade year, and one teacher and classroom were randomly assigned to a control group that continued usual practice.² Students were then assigned to the classrooms through a quasi-random process that included some adjustments to balance male-female ratios. The students were predominantly African-American (85%) and economically disadvantaged (70% received free or reduced-price school lunch).

Effects at the age-13 follow-up: Compared to the control group, students in the Classroom Prevention Program were –

- 26% less likely to have started smoking (34.4% of program group students had started smoking versus 46.6% of control group students).

¹ In addition to the effects summarized in this write-up, the study reported effects at age 11 on conduct outcomes and use of mental health services, and at age 19 on smoking initiation. Both reports suggest sizable effects on these outcomes, but our review found limitations in the study analysis that make these findings less convincing than the others shown in this write-up (e.g., at age 11, the analysis did not account for the fact that classrooms, rather than individual students, had been randomly assigned; at age 19, effects on smoking were estimated for a subgroup formed after random assignment rather than for the full sample). For that reason, we do not summarize these results here.

² The study also evaluated a second program – the Family-School Partnership – which was implemented in nine additional randomly-assigned classrooms. This program was designed to improve parent-school communication and parents' teaching and parenting skills. We do not summarize the effects of this program because they were smaller than those of the Classroom Prevention Program and, in most cases, not statistically significant.

- Less than half as likely to have used cocaine, crack, or heroin (2.6% versus 7.3%).

There were no effects on the percent using (i) alcohol without parental permission, (ii) marijuana, or (iii) inhalants.

Effects at the age-19 follow-up: Compared to the control group, students in the Classroom Prevention Program –

- Were 62% more likely to have attended college (31.5% of program group students had attended college versus 19.4% of control group students).
- Were 21% more likely to have graduated from high school or received a GED (61.9% versus 51.3%).
- Were 36% less likely to have received special education services at some point in grades 1-12 (22.4% versus 34.8%).
- Scored higher in reading (standardized effect size of 0.32) and in math (standardized effect size of 0.42). These gains equate to approximately one additional year of academic progress.³

Discussion of study quality:

- The study had a long-term follow-up with low-to-moderate attrition: At the age-13 and age-19 follow-ups, outcome data were obtained for 80-88% of the original sample (depending on the outcome measure). Follow-up rates were similar for the program and control groups.
- At the start of the study, the program and control group students were highly similar in their observable characteristics (e.g., demographics, academic achievement, and behavior).
- The study measured outcomes for all students assigned to program group classrooms, regardless of how well the program was actually implemented in their classroom (i.e., the study used an intention-to-treat analysis).
- The study evaluated the Classroom Prevention Program as delivered in typical public school classrooms by regular teachers, thus providing evidence of its effectiveness under real-world implementation conditions.
- At the age-13 follow-up, substance use outcomes were measured through confidential, self-administered computer surveys, which studies have found to produce more accurate reporting of sensitive behavior than standard questionnaire and interview methods.
- At the age-19 follow-up, high school graduation rates and special education use were measured with official school district records; and reading and math achievement were measured with a standardized test whose validity is well-established (the Kaufman Test of Educational Achievement). College attendance was measured through interviews.

³ Specifically, these gains are approximately equal to the average annual gain for U.S. students between the end of first grade and the end of twelfth grade (0.35 in reading and 0.42 in math), as measured in seven nationally normed tests – see Bloom, Hill, and Lipsey 2008, referenced at the end of this summary.

- The study’s statistical analysis accounted for the fact that classrooms, rather than individual students, were randomly assigned to the program versus control group.
- A study limitation is that its sample is relatively small and geographically-concentrated – 18 classrooms in the Baltimore, Maryland school district. The study was able to find statistically-significant effects, despite its small sample, because the effects are large in size. Still, the Top Tier initiative’s Expert Panel believes that replication of these findings in a second trial, conducted in another setting by the same or other researchers, would be desirable to (i) rule out the possibility that the findings occurred by chance (due to the small sample); and (ii) confirm that the program is effective in other settings where it would normally be implemented.

Other Studies:

This is the only randomized controlled trial of the Classroom Prevention Program. At least five other randomized controlled trials have been conducted, or are underway, to evaluate the classroom management strategy used in this program – i.e., the Good Behavior Game. The findings of these trials are generally consistent with those of the study described above. We do not summarize these trials here because they did not evaluate the same form of the intervention (i.e., the Good Behavior Game combined with an enhanced academic curriculum). In addition, the Top Tier initiative’s Expert Panel has previously considered the findings from these trials in its review of the stand-alone version of the Good Behavior Game, and found them to be promising but not yet Top Tier or Near Top Tier – for example, because effects did not always reach statistical significance (possibly due to small samples) or varied across different cohorts of students.

IV. Summary of the Intervention’s Benefits and Costs:

If taxpayers fund the delivery of this intervention, what benefits to society can they expect to result, and what would be their net cost? The following table provides a summary. This is intended to be a general overview of social benefits in relation to taxpayer cost, rather than a comprehensive benefit-cost analysis. It assigns monetary value to particular benefits and costs only when doing so requires minimal assumptions. The monetary amounts shown are in 2010 dollars.

<p><u>Benefits To Society</u></p> <ul style="list-style-type: none"> ▪ <u>At age 13</u>, a reduction in students’ initiation of smoking by 26% and of hard drugs by more than half. ▪ <u>At age 19</u>, a 21% increase in students’ likelihood of graduating high school, a 62% increase in their likelihood of attending college, and about one extra year of progress in reading and math.
<p><u>Net Cost To Taxpayers</u></p> <ul style="list-style-type: none"> ▪ The program cost approximately \$500 per student. ▪ This cost was at least partly offset by reduced spending on special education services (as program participants were 36% less likely to ever receive such services in grades 1-12).

V. References:

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