Name of Program/Strategy: Good Behavior Game

Report Contents

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1. Overview and description

Good Behavior Game (GBG) is a classroom-based behavior management strategy for elementary school that teachers use along with a school's standard instructional curricula. GBG uses a classroom-wide game format with teams and rewards to socialize children to the role of student and reduce aggressive, disruptive classroom behavior, which is a risk factor for adolescent and adult illicit drug abuse, alcohol abuse, cigarette smoking, antisocial personality disorder (ASPD), and violent and criminal behavior. GBG is structured around four core elements: classroom rules, team membership, self- and team-behavior monitoring, and positive reinforcement of individual team members and the team as a whole.

In each 1st-grade classroom, the teacher assigns all children to one of three teams with an equal number of girls and boys; aggressive, disruptive children; and shy, socially isolated children. The assignments are made on the basis of an initial 10-week observation period at the start of the school year. Basic classroom rules of student behavior are posted, and the whole team is rewarded if team

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members commit a total of four or fewer infractions of the classroom rules during game periods. For the first 3 weeks, GBG is played three times a week for 10 minutes each time during periods of the day when the classroom environment is less structured and the students are working independently of the teacher. Game periods are increased in length and frequency at regular intervals; by mid-year the game is played every day. Initially, the teacher announces the start of a game period and gives rewards at the conclusion of the game. Later, the teacher initiates game periods without announcement and defers rewards until the end of the school day or week. Over time, GBG is played at different times of the day and during different classroom tasks, so the game evolves from being highly predictable in timing and occurrence with immediate reinforcement to being unpredictable with delayed reinforcement. The children continue to participate in GBG through 2nd grade, where they are assigned to new classrooms and new teams. Training is required for the teachers who implement the intervention as well as for their coaches, who work with, support, and supervise them.

Schools that implement the program may choose to extend GBG beyond 2nd grade. In the study reviewed for this summary, children received GBG over 2 years, in 1st and 2nd grade, and their class assignments in 1st grade remained the same in 2nd grade.

2. Implementation considerations (if available)

3. Descriptive information

Areas of Interest	Mental health promotion Substance abuse prevention
Outcomes	1: Drug abuse/dependence disorders 2: Alcohol abuse/dependence disorders 3: Regular cigarette smoking 4: Antisocial personality disorder 5: Violent and criminal behavior
Outcome Categories	Alcohol Drugs Mental health Tobacco Violence

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Ages	6-12 (Childhood)
Gender	Male Female
Races/Ethnicities	American Indian or Alaska Native Asian Black or African American Hispanic or Latino White
Settings	School
Geographic Locations	Urban Suburban Rural and/or frontier
Implementation History	Developed in 1969 as a classroom behavior management strategy, GBG was first evaluated as a preventive intervention in a population-based randomized field trial in the mid-1980s. Since 2003, an estimated 4,000 children in the United States and internationally have received GBG through implementations led by Johns Hopkins Bloomberg School of Public Health and the American Institutes for Research (AIR). In 2010, SAMHSA awarded 5-year grants to 22 local educational agencies in economically disadvantaged communities across the country, including tribal communities, to implement GBG. Outside the United States, GBG has been implemented and evaluated as part of randomized field trials in the Netherlands and Belgium, and it is currently being piloted in England.
NIH Funding/CER Studies	Partially/fully funded by National Institutes of Health: Yes Evaluated in comparative effectiveness research studies: Yes
Adaptations	The classroom materials have been translated into Spanish and are being used in classrooms in which Spanish is the language of instruction.
Adverse Effects	No adverse effects, concerns, or unintended consequences were identified by the developer.
IOM Prevention Categories	Universal

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4. Outcomes

Outcome 1: Drug abuse/dependence disorders

Description of Measures	Drug abuse/dependence disorders (DSM-IV criteria) were measured by the University of Michigan version of the Composite International Diagnostic Interview (UM-CIDI). The standard CIDI, administered by a layperson, is a structured psychiatric interview designed to minimize clinical judgment when eliciting diagnostic information and recording responses. The original, standard CIDI used diagnostic criteria consistent with both DSM-III-R and International Statistical Classification of Diseases and Related Health Problems, 9th Revision (ICD-9), coding systems and included a substance abuse module to address alcohol, tobacco, and other drug use/abuse. The UM-CIDI, a shortened, 90-minute version of the standard CIDI, addresses fewer clinical diagnoses, includes commitment and motivation probes, and places diagnostic probe questions at the beginning of the interview. The version of the UM-CIDI used in the study is consistent with DSM-IV and ICD-10 criteria for certain clinical diagnoses. The instrument measured the occurrence of lifetime, past-year, and past-month drug abuse/dependence disorders. To assess the moderating effects of aggressive, disruptive behavior in the 1st grade on drug abuse/dependence disorders in young adulthood, the Authority Acceptance subscale of the Teacher Observation of Classroom Adaptation--Revised (TOCA-R) instrument was used to measure baseline aggressive, disruptive behaviors for each 1st-grade child during the initial 6 weeks of the school year. The TOCA-R is a 2-hour, structured interview administered by trained interviewers to teachers who rate each student's in-classroom behavior across three subscales: Authority Acceptance, Social Contact, and Cognitive Concentration. The Authority Acceptance subscale, which measures aggressive, disruptive behavior, consists of 10 items: breaks rules, breaks things, fights, harms others, harms property, lies, stubborn, teases classmates, takes others' property, and yells at others. The teacher rates each item on a 6-point Likert-type scale that ranges from 1 (almost never) to 6 (almost always).

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Key Findings	A 2-year field trial randomly assigned 19 primary schools with 41 1st-grade classrooms to 1 of 3 conditions: GBG added to the standard 1st- and 2nd-grade curricula, a reading instruction program known as Mastery Learning added to the standard curricula, or the standard curricula (external control). Within each GBG- or Mastery Learning-designated school, all 1st-grade classrooms/teachers were also randomly assigned to either the active intervention or the standard curriculum (internal control). The TOCA-R was administered at baseline, and the UM-CIDI was administered at follow-up, 14 years after the intervention (at ages 19-21 years). For participants in Mastery Learning classrooms, only baseline data were collected. Findings from this study included the following: • The percentage of participants at the 14-year follow-up with a drug abuse/dependence disorder was lower among those assigned to GBG classrooms (12%) than internal control classrooms (21%; p = .04) and all control classrooms/schools (19%; p = .03), unadjusted for baseline aggressive, disruptive behavior or for classroom in 1st grade. • The percentage of male participants at the 14-year follow-up with a drug abuse/dependence disorder was lower among those assigned to GBG classrooms (19%) than internal control classrooms (38%; p = .01) and all control classrooms/schools (30%; p = .05), unadjusted for baseline aggressive, disruptive behavior or for classroom in 1st grade. • Among the more aggressive, disruptive males in 1st grade (12% with a score of >3.5 on the TOCA-R Authority Acceptance subscale), the percentage at the 14-year follow-up with a drug abuse/dependence disorder was lower among those assigned to GBG classrooms (29%) than internal control classrooms (83%; p = .02) and all control classrooms/schools (68%; p = .02), unadjusted for baseline aggressive, disruptive behavior or for classroom in 1st grade.

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	• At the 14-year follow-up, compared with males assigned to GBG classrooms, males assigned to internal control classrooms were about 2.7 times more likely to have a drug abuse/dependence disorder (log odds ratio = 0.999; p = .035) and about 3.4 times more likely to have a drug abuse/dependence disorder after controlling for baseline depression symptoms (log odds ratio = -1.216; p = .008). These group differences were associated with small and medium effect sizes (odds ratio = 2.72 and 3.37), respectively. • At the 14-year follow-up, males assigned to GBG classrooms had lower rates of drug abuse/dependence disorders than males assigned to all control classrooms/schools (p = .035) after controlling for baseline aggressive, disruptive behavior.
Studies Measuring Outcome	Study 1
Study Designs	Experimental
Quality of Research Rating	3.2 (0.0-4.0 scale)

Outcome 2: Alcohol abuse/dependence disorders

Description of Measures	Alcohol abuse/dependence disorders (DSM-IV criteria) were measured by the UM-CIDI. The standard CIDI, administered by a layperson, is a structured psychiatric interview designed to minimize clinical judgment when eliciting diagnostic information and recording responses. The original, standard CIDI used diagnostic criteria consistent with both DSM-III-R and ICD-9 coding systems and included a substance abuse module to address alcohol, tobacco, and other drug use/abuse. The UM-CIDI, a shortened, 90-minute version of the standard CIDI, addresses fewer clinical diagnoses, includes commitment and motivation probes, and places diagnostic probe questions at the beginning of the interview. The version of the UM-CIDI used in the study is consistent with DSM-IV and ICD-10 criteria for certain clinical diagnoses. The instrument measured the occurrence of lifetime, past-year, and past-month alcohol

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	abuse/dependence disorders. To assess the moderating effects of aggressive, disruptive behavior in the 1st grade on alcohol abuse/dependence disorders in young adulthood, the Authority Acceptance subscale of the TOCA-R was used to measure baseline aggressive, disruptive behaviors for each 1st-grade child during the initial 6 weeks of the school year. The TOCA-R is a 2-hour, structured interview administered by trained interviewers to teachers who rate each student's in-classroom behavior across three subscales: Authority Acceptance, Social Contact, and Cognitive Concentration. The Authority Acceptance subscale, which measures aggressive, disruptive behavior, consists of 10 items: breaks rules, breaks things, fights, harms others, harms property, lies, stubborn, teases classmates, takes others' property, and yells at others. The teacher rates each item on a 6-point Likert-type scale that ranges from 1 (almost never) to 6 (almost always).
Key Findings	A 2-year field trial randomly assigned 19 primary schools with 41 1st-grade classrooms to 1 of 3 conditions: GBG added to the standard 1st- and 2nd-grade curricula, a reading instruction program known as Mastery Learning added to the standard curricula, or the standard curricula (external control). Within each GBG- or Mastery Learning-designated school, all 1st-grade classrooms/teachers were also randomly assigned to either the active intervention or the standard curriculum (internal control). The TOCA-R was administered at baseline, and the UM-CIDI was administered at follow-up, 14 years after the intervention (at ages 19-21 years). For participants in Mastery Learning classrooms, only baseline data were collected. Findings from this study included the following: • The percentage of participants at the 14-year follow-up with a lifetime alcohol abuse/dependence disorder was lower for those assigned to GBG classrooms than all control classrooms/schools (13% vs. 29%; p = .03), unadjusted for baseline aggressive, disruptive behavior. • At the 14-year follow-up, participants assigned to GBG classrooms had lower rates of lifetime alcohol abuse/dependence disorders than those assigned to

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	internal control classrooms (p< .05). Compared with participants assigned to GBG classrooms, those assigned to internal control classrooms were about twice as likely to have an alcohol abuse/dependence disorder (p= .045). This group difference was associated with a small effect size (odds ratio = 2.01).
Studies Measuring Outcome	Study 1
Study Designs	Experimental
Quality of Research Rating	3.2 (0.0-4.0 scale)

Outcome 3: Regular cigarette smoking

Description of Measures	Regular cigarette smoking, defined as smoking more than 10 cigarettes per day, was measured by the UM-CIDI. The standard CIDI, administered by a layperson, is a structured psychiatric interview designed to minimize clinical judgment when eliciting diagnostic information and recording responses. The original, standard CIDI used diagnostic criteria consistent with both DSM-III-R and ICD-9 coding systems and included a substance abuse module to address alcohol, tobacco, and other drug use/abuse. The UM-CIDI, a shortened, 90-minute version of the standard CIDI, addresses fewer clinical diagnoses, includes commitment and motivation probes, and places diagnostic probe questions at the beginning of the interview. The version of the UM-CIDI used in the study is consistent with DSM-IV and ICD-10 criteria for certain clinical diagnoses. To assess the moderating effects of aggressive, disruptive behavior in the 1st grade on regular cigarette smoking in young adulthood, the Authority Acceptance subscale of the TOCA-R was used to measure baseline aggressive, disruptive behaviors for each 1st-grade child during the initial 6 weeks of the school year. The TOCA-R is a 2-hour, structured interview administered by trained interviewers to teachers who rate each student's in-classroom behavior across three subscales: Authority Acceptance, Social Contact, and Cognitive Concentration. The Authority Acceptance

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	subscale, which measures aggressive, disruptive behavior, consists of 10 items: breaks rules, breaks things, fights, harms others, harms property, lies, stubborn, teases classmates, takes others' property, and yells at others. The teacher rates each item on a 6-point Likert-type scale that ranges from 1 (almost never) to 6 (almost always).
Key Findings	A 2-year field trial randomly assigned 19 primary schools with 41 1st-grade classrooms to 1 of 3 conditions: GBG added to the standard 1st- and 2nd-grade curricula, a reading instruction program known as Mastery Learning added to the standard curricula, or the standard curricula (external control). Within each GBG- or Mastery Learning-designated school, all 1st-grade classrooms/teachers were also randomly assigned to either the active intervention or the standard curriculum (internal control). The TOCA-R was administered at baseline, and the UM-CIDI was administered at follow-up, 14 years after the intervention (at ages 19-21 years). For participants in Mastery Learning classrooms, only baseline data were collected. Findings from this study included the following: • At the 14-year follow-up, the percentage of regular cigarette smokers was lower among those assigned to GBG than all control classrooms/schools (6% vs. 14%; p = .002), unadjusted for baseline aggressive, disruptive behavior. • At the 14-year follow-up, the percentage of males who were regular cigarette smokers was lower among those assigned to GBG classrooms (6%) than internal control classrooms (19%; p = .03) and all control classrooms/schools (20%; p = .004), unadjusted for baseline aggressive, disruptive behavior. • Among the more aggressive, disruptive males in 1st grade (12% with a score of >3.5 on the TOCA-R Authority Acceptance subscale), none assigned to GBG classrooms were regular cigarette smokers at the 14-year follow-up compared with 40% of those assigned to internal control classrooms (p = .008) and 25% of those assigned to all control classrooms/schools (p= .03), unadjusted for classroom in 1st grade. • At the 14-year follow-up, males assigned to GBG

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	classrooms were less likely to report regular smoking than those assigned to internal control classrooms (p = .03), unadjusted for baseline aggressive, disruptive behavior and classroom in 1st grade; this relationship was more pronounced among males with higher levels of baseline aggressive, disruptive behavior (p= .001).
Studies Measuring Outcome	Study 1
Study Designs	Experimental
Quality of Research Rating	3.1 (0.0-4.0 scale)

Outcome 4: Antisocial personality disorder

Description of Measures	ASPD (DSM-IV criteria) was measured by the UM-CIDI. The standard CIDI, administered by a layperson, is a structured psychiatric interview designed to minimize clinical judgment when eliciting diagnostic information and recording responses. The original, standard CIDI used diagnostic criteria consistent with both DSM-III-R and ICD-9 coding systems and included a substance abuse module to address alcohol, tobacco, and other drug use/abuse. The UM-CIDI, a shortened, 90-minute version of the standard CIDI, addresses fewer clinical diagnoses, includes commitment and motivation probes, and places diagnostic probe questions at the beginning of the interview. The version of the UM-CIDI used in the study is consistent with DSM-IV and ICD-10 criteria for certain clinical diagnoses. The instrument measured the occurrence of lifetime, past-year, and past-month ASPD. To assess the moderating effects of childhood aggressive, disruptive behavior patterns on ASPD in young adulthood, the Authority Acceptance subscale of the TOCA-R was used to measure aggressive, disruptive behaviors for each 1st-grade child during the initial 6 weeks of the school year and each year thereafter through 7th grade. The TOCA-R is a 2-hour, structured interview administered by trained interviewers to teachers who rate each student's in-classroom behavior across three subscales: Authority Acceptance, Social Contact, and Cognitive Concentration. The Authority Acceptance

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	subscale, which measures aggressive, disruptive behavior, consists of 10 items: breaks rules, breaks things, fights, harms others, harms property, lies, stubborn, teases classmates, takes others' property, and yells at others. The teacher rates each item on a 6-point Likert-type scale that ranges from 1 (almost never) to 6 (almost always). Three patterns of Authority Acceptance subscale scores for aggressive, disruptive behavior in grades 1-7 were derived: • The persistent high pattern of scores started at 4.0 in 1st grade, increased in 3rd or 4th grade, and decreased through 7th grade to just below 3.0. • The escalating medium pattern of scores started above 2.0 in 1st grade and increased gradually through 7th grade but remained below 3.0. • The stable low pattern of scores started at about 1.5 in 1st grade and remained at or slightly above 1.5 through 7th grade.
Key Findings	A 2-year field trial randomly assigned 19 primary schools with 41 1st-grade classrooms to 1 of 3 conditions: GBG added to the standard 1st- and 2nd-grade curricula, a reading instruction program known as Mastery Learning added to the standard curricula, or the standard curricula (external control). Within each GBG- or Mastery Learning-designated school, all 1st-grade classrooms/teachers were also randomly assigned to either the active intervention or the standard curriculum (internal control). The TOCA-R was administered at baseline and each year through grade 7, and the UM-CIDI was administered at follow-up, 14 years after the intervention (at ages 19-21 years). For participants in Mastery Learning classrooms, only baseline data were collected. Findings from this study included the following: • At the 14-year follow-up, the percentage of participants with ASPD was lower among those assigned to GBG classrooms than all control classrooms/schools (17% vs. 25%; p = .03), unadjusted for baseline aggressive, disruptive behavior. • Among the more aggressive, disruptive males in 1st grade (12% with scores of >3.5 on the TOCA-R Authority

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	Acceptance subscale), the percentage with ASPD at the 14-year follow-up was lower among those assigned to GBG classrooms than internal control classrooms (38% vs. 70%; p = .05), unadjusted for baseline depression symptoms or baseline aggressive, disruptive behavior. • At the 14-year follow-up, males assigned to GBG classrooms had a lower prevalence of ASPD than those assigned to internal control classrooms; this relationship was more pronounced among males with higher levels of baseline aggressive, disruptive behavior (p = .028). • Among males with a persistent high pattern of aggressive, disruptive behavior in grades 1-7, 40% of those assigned to GBG classrooms had ASPD at the 14-year follow-up compared with 100% of those assigned to internal control classrooms (p < .001).
Studies Measuring Outcome	Study 1
Study Designs	Experimental
Quality of Research Rating	3.2 (0.0-4.0 scale)

Outcome 5: Violent and criminal behavior

Description of Measures	Violent and criminal behavior was measured using juvenile court and adult incarceration records. Juvenile court records for violent crimes (e.g., assault, rape) were obtained from local records in Baltimore City. Records of adult incarceration were accessed through the Uniform Crime Reports system, which tracks data on felony offenses (e.g., murder, non-negligent manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft). Antisocial personality disorder (DSM-IV criteria) was measured by the UM-CIDI. The standard CIDI, administered by a layperson, is a structured psychiatric interview designed to minimize clinical judgment

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	when eliciting diagnostic information and recording responses. The original, standard CIDI used diagnostic criteria consistent with both DSM-III-R and ICD-9 coding systems and included a substance abuse module to address alcohol, tobacco, and other drug use/abuse. The UM-CIDI, a shortened, 90-minute version of the standard CIDI, addresses fewer clinical diagnoses, includes commitment and motivation probes, and places diagnostic probe questions at the beginning of the interview. The version of the UM-CIDI used in the study is consistent with DSM-IV and ICD-10 criteria for certain clinical diagnoses. The instrument measured the occurrence of lifetime, past-year, and past-month ASPD. To assess the moderating effects of childhood aggressive, disruptive behavior patterns on violent and criminal behavior in young adulthood, the Authority Acceptance subscale of the TOCA-R was used to measure aggressive, disruptive behaviors for each 1st-grade child during the initial 6 weeks of the school year and each year thereafter through 7th grade. The TOCA-R is a 2-hour, structured interview administered by trained interviewers to teachers who rate each student's in-classroom behavior across three subscales: Authority Acceptance, Social Contact, and Cognitive Concentration. The Authority Acceptance subscale, which measures aggressive, disruptive behavior, consists of 10 items: breaks rules, breaks things, fights, harms others, harms property, lies, stubborn, teases classmates, takes others' property, and yells at others. The teacher rates each item on a 6-point Likert-type scale that ranges from 1 (almost never) to 6 (almost always). Three patterns of Authority Acceptance subscale scores for aggressive, disruptive behavior in grades 1-7 were derived: • The persistent high pattern of scores started at 4.0 in 1st grade, increased in 3rd or 4th grade, and decreased through 7th grade to just below 3.0. • The escalating medium pattern of scores started above 2.0 in 1st grade and increased gradually through 7th grade but remained below 3.0. • The stable low pattern of scores started at about 1.5 in 1st grade and remained at or slightly above 1.5 through 7th grade.

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Key Findings	A 2-year field trial randomly assigned 19 primary schools with 41 1st-grade classrooms to 1 of 3 conditions: GBG added to the standard 1st- and 2nd-grade curricula, a reading instruction program known as Mastery Learning added to the standard curricula, or the standard curricula (external control). Within each GBG- or Mastery Learning-designated school, all 1st-grade classrooms/teachers were also randomly assigned to either the active intervention or the standard curriculum (internal control). Data were collected with the TOCA-R at baseline and each year through grade 7, and data were collected from juvenile court and adult incarceration records and with the UM-CIDI at follow-up, 14 years after the intervention (at ages 19-21 years). For participants in Mastery Learning classrooms, only baseline data were collected. Among male participants with a persistent high pattern of aggressive, disruptive behavior in grades 1-7, a smaller percentage of those assigned to GBG than internal control classrooms had both ASPD and a record of violent and criminal behavior at the 14-year follow-up (34% vs. 50%; $p < .001$).
Studies Measuring Outcome	Study 1
Study Designs	Experimental
Quality of Research Rating	3.2 (0.0-4.0 scale)

5. Cost effectiveness report (Washington State Institute of Public Policy – if available)

6. Washington State results (from Performance Based Prevention System (PBPS) – if available)

7. Who is using this program/strategy

Washington Counties	Oregon Counties

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8. Study populations

The following populations were identified in the studies reviewed for Quality of Research.

Study	Age	Gender	Race/Ethnicity
Study 1	6-12 (Childhood)	50.1% Male 49.9% Female	67.2% Black or African American 30.8% White 1.4% American Indian or Alaska Native 0.3% Hispanic or Latino 0.2% Asian

9. Quality of studies

The documents below were reviewed for Quality of Research. The research point of contact can provide information regarding the studies reviewed and the availability of additional materials, including those from more recent studies that may have been conducted.

Study 1

Kellam, S. G., Brown, C. H., Poduska, J. M., Ialongo, N. S., Wang, W., Toyinbo, P., et al. (2008). Effects of a universal classroom behavior management program in first and second grades on young adult behavioral, psychiatric, and social outcomes. Drug and Alcohol Dependence, 95(Suppl. 1), S5-S28.

Mackenzie, A. C., Lurye, I., & Kellam, S. G. (2008). History and evolution of the Good Behavior Game. Supplementary materials for the article "Effects of a universal classroom behavior management program in first and second grades on young adult behavioral, psychiatric, and social outcomes."

Petras, H., Kellam, S. G., Brown, C. H., Muthen, B. O., Ialongo, N. S., & Poduska, J. M. (2008). Developmental epidemiological courses leading to antisocial personality disorder and violent and criminal behavior: Effects by young adulthood of a universal preventive intervention in first- and second-grade classrooms. Drug and Alcohol Dependence, 95(Suppl. 1), S45-S59.

Supplementary Materials

Brown, C. H., Wang, W., Kellam, S. G., Muthen, B. O., Petras, H., Toyinbo, P., et al. (2008). Methods for testing theory and evaluating impact in randomized field trials: Intent-to-treat analyses for integrating the perspectives of person, place, and time. Drug and Alcohol Dependence, 95(Suppl. 1), S74-S104.

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Kellam, S. G., Ling, X., Merisca, R., Brown, C. H., & Ialongo, N. (1998). The effect of the level of aggression in the first grade classroom on the course and malleability of aggressive behavior into middle school. Development and Psychopathology, 10(2), 165-185.

Kessler, R. C., Wittchen, H. U., Abelson, J. M., McGonagle, K. A., Schwartz, N., Kendler, K. S., et al. (1998). Methodological studies of the Composite International Diagnostic Interview (CIDI) in the U.S. National Comorbidity Survey. International Journal of Methods in Psychiatry Research, 7, 33-55.

Lochman, J. E., & the Conduct Problems Prevention Research Group. (1995). Screening of child behavior problems for prevention programs at school entry. Journal of Consulting and Clinical Psychology, 63(4), 549-559.

Poduska, J. M., Kellam, S. G., Wang, W., Brown, C. H., Ialongo, N. S., & Toyinbo, P. (2008). Impact of the Good Behavior Game, a universal classroom-based behavior intervention, on young adult service use for problems with emotions, behavior, or drugs or alcohol. Drug and Alcohol Dependence, 95(Suppl. 1), S29-S44.

Turner, R. J., & Gil, A. G. (2002). Psychiatric and substance use disorders in South Florida: Racial/ethnic and gender contrasts in a young adult cohort. Archives of General Psychiatry, 59(1), 43-50.

Wittchen, H. U. (1994). Reliability and validity studies of the WHO--Composite International Diagnostic Interview (CIDI): A critical review. Journal of Psychiatric Research, 28(1), 57-84.

Quality of Research Ratings by Criteria (0.0-4.0 scale)

External reviewers independently evaluate the Quality of Research for an intervention's reported results using six criteria:

1. Reliability of measures
2. Validity of measures
3. Intervention fidelity
4. Missing data and attrition
5. Potential confounding variables
6. Appropriateness of analysis

For more information about these criteria and the meaning of the ratings, see Quality of Research.

Outcome	Reliability of Measures	Validity of Measures	Fidelity	Missing Data/Attrition	Confounding Variables	Data Analysis	Overall Rating
1: Drug abuse/dependence disorders	3.0	4.0	2.0	3.0	3.0	4.0	3.2

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2: Alcohol abuse/dependence disorders	3.0	4.0	2.0	3.0	3.0	4.0	3.2
3: Regular cigarette smoking	3.0	3.5	2.0	3.0	3.0	4.0	3.1
4: Antisocial personality disorder	3.0	4.0	2.0	3.3	3.0	4.0	3.2
5: Violent and criminal behavior	3.5	3.5	2.0	3.0	3.0	4.0	3.2

Study Strengths

Independent investigators have demonstrated high test-retest reliability and inter-interviewer reliability in general for the UM-CIDI, with high convergent validity across ICD-10 and DSM-IV diagnostic coding systems. Considerable effort was expended to ensure high UM-CIDI inter-interviewer reliability in the study. The cutoff for regular cigarette smoking was based on national, age-adjusted statistics from the Centers for Disease Control and Prevention's Vital and Health Statistics for 2005-2007. GBG 1st- and 2nd-grade teachers for the original cohort received 40 hours of training followed by biweekly monitoring, used a teacher's log/chart of GBG periods played, and received supportive mentoring throughout the school year. There was a relatively low attrition rate (25%) during the 14-year period between the end of the intervention and the follow-up; the minimal differential attrition across the intervention and control groups was handled statistically by a sophisticated multiple imputation approach. Schools matched on size and demographics were randomly assigned to either the intervention or control condition, students entering 1st grade were sequentially assigned to classrooms within each school to achieve matching on kindergarten experience and academic and behavioral performance, and teachers/classrooms within intervention schools were randomly assigned to either the intervention or control condition. Highly sophisticated, state-of-the-art statistical approaches were used to model the data at each level of randomization using an intent-to-treat approach.

Study Weaknesses

Study sample test-retest reliability and inter-interviewer reliability statistics on the UM-CIDI were not available, and there was no audio taping of the 14-year follow-up telephone assessment for subsequent review by supervisors. The researchers did not measure GBG implementation fidelity (i.e., adherence, dosage, quality of delivery, participation responsiveness). The extent to which TOCA-R interviewers were aware of classroom condition was uncertain. The single, point prevalence follow-up study design limited mediational modeling of the data for three of the five outcomes.

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10. Readiness for Dissemination

The materials below were reviewed for Readiness for Dissemination. The implementation point of contact can provide information regarding implementation of the intervention and the availability of additional, updated, or new materials.

Dissemination Materials

American Institutes for Research. (2010). Good Behavior Game booster training: Presenter & participant materials. Baltimore, MD: Author. American Institutes for Research. (2010). Good Behavior Game implementation materials. Baltimore, MD: Author.

American Institutes for Research. (2010). Introductory Good Behavior Game training: Participant's binder. Baltimore, MD: Author. American Institutes for Research. (2010). Participant's binder: Training on GBG coaching/mentoring practices. Baltimore, MD: Author. American Institutes for Research. (2010). Professional developmental guide for GBG coaching/mentoring practices. Baltimore, MD: Author.

American Institutes for Research. (2010). Professional developmental guide for introductory Good Behavior Game training. Baltimore, MD: Author.

American Institutes for Research. (2010, April). AIR Good Behavior Game multi-level model of training and support. Baltimore, MD: Author. American Institutes for Research. (n.d.). Good Behavior Game. Retrieved from http://www.air.org/expertise/index/?fa=viewContent&content_id=785

American Institutes for Research. (n.d.). Good Behavior Game benchmarks/planning template for districts. Baltimore, MD: Author. American Institutes for Research. (n.d.). Good Behavior Game benchmarks/planning template for schools. Baltimore, MD: Author. American Institutes for Research. (n.d.). My Good Behavior Game book. Baltimore, MD: Author.

American Institutes for Research. (n.d.). Role of the certified Good Behavior Game coach--Duties and responsibilities. Baltimore, MD: Author.

Readiness for Dissemination Ratings by Criteria (0.0-4.0 scale)

External reviewers independently evaluate the intervention's Readiness for Dissemination using three criteria:

1. Availability of implementation materials
2. Availability of training and support resources
3. Availability of quality assurance procedures

For more information about these criteria and the meaning of the ratings, see Readiness for Dissemination.

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Implementation Materials	Training and Support Resources	Quality Assurance Procedures	Overall Rating
4.0	4.0	4.0	4.0

Dissemination Strengths

An array of well-written and easy-to-use classroom materials and teacher resources is provided to support implementation. Planning templates provide concrete guidance to administrators on effectively introducing and sustaining this intervention. Training, ongoing coaching, and professional development opportunities are available for various levels of staff. High-quality materials that directly support the training and coaching are well organized, include practical content, and provide detailed instructions and useful resources. The multilevel approach to training and support is comprehensive yet flexible to the needs of each site. The coaching model complements the use of quality assurance tools to ensure fidelity to the model and continuous quality improvement.

Dissemination Weaknesses

No weaknesses were identified by reviewers.

11. Costs (if available)

The cost information below was provided by the developer. Although this cost information may have been updated by the developer since the time of review, it may not reflect the current costs or availability of items (including newly developed or discontinued items). The implementation point of contact can provide current information and discuss implementation requirements.

Item Description	Cost	Required by Program Developer
Implementation material set (includes teacher manuals for initial and booster trainings, a classroom rules poster, 50 student desk rule cards, 50 student booklets, 50 parent letters, a rubber stamp, and a timer)	$600 per teacher	Yes
Manual for administrators	$75 per administrator	No
Coach material set (includes manuals and training DVD)	$200 per coach	Yes

Student desk rule cards	$30 for 50	No
Student booklets	$175 for 50	No
Parent letters	$15 for 50	No
Rubber stamp	$25 each	No
1- to 5-day, on-site readiness visit	$2,000 per day plus travel expenses	Yes
2-day, on-site initial teacher training	$2,000 per day per trainer plus travel expenses (1 trainer per 16 trainees)	Yes
1-day, on-site teacher booster session	$2,000 per trainer plus travel	Yes
1-day, on-site initial coach training	$2,000 per trainer plus travel expenses	Yes
Three 1-day, on-site implementation audits	$2,000 per audit, per trainer, per coach plus travel expenses	Yes
Technical assistance by phone and email	$200 per hour	Yes
Quality assurance tools	Included with implementation and training materials	No

Additional Information

The total cost to certify one to four local GBG coaches over the course of a year is $34,250-$40,250, excluding travel expenses. Sites spend about $150 per classroom annually on student incentives.

12. Contacts

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C. Hendricks Brown, Ph.D. (305) 243-2529 chbrown@med.miami.edu

Web Site:

http://www.air.org/goodbehaviorgame

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