

Behavior Game Played in Primary Grades Reduces Later Drug-Related Problems

Positive effects are most pronounced in disruptive boys.

BY NIDA NOTES STAFF

Awarding smiley-face stickers to teams of first-graders in Baltimore for the good behavior of the individual team members greatly increased the likelihood that the students would experience an adolescence free of substance abuse and dependence. Teachers gave out the stickers and other token rewards and penalties

in the Good Behavior Game (GBG), a classroom activity designed to inculcate appropriate behavior during children’s first 2 years in school.

“The GBG gives teachers an effective method of managing behavior in the classroom and of teaching children how to be students,” says Dr. Sheppard Kellam of the American Institutes for Research in Washington, D.C.

Dr. Kellam and colleagues began the longitudinal study of the GBG while at Johns Hopkins

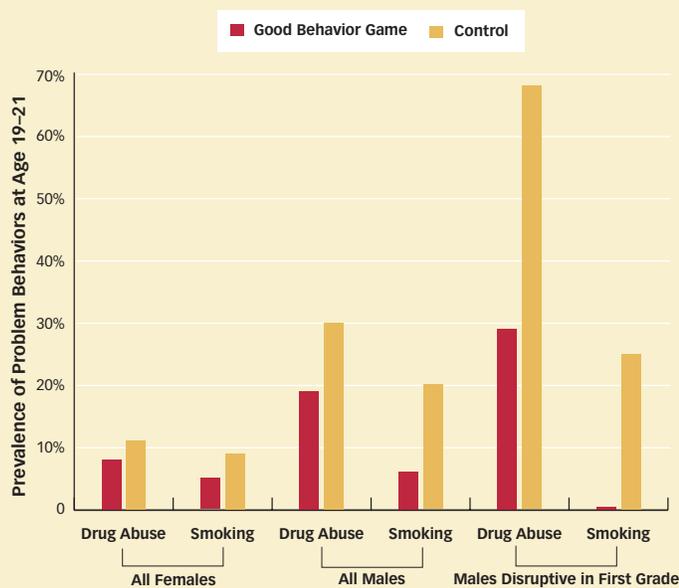
University in close partnership with the Baltimore City Public School System. Dr. Kellam suggests that the activity produces a broad spectrum of long-term benefits by steering 5- and 6-year-olds away from aggressive and disruptive behaviors, which have long been recognized as precursors of many negative adolescent and adult outcomes. The study found that the GBG was protective not only against substance abuse and dependence but also against teenage delinquency, antisocial personality disorder, and suicide attempts.

HOW TO PLAY THE GAME

Teachers first set the rules of the game, presenting a list

[Continued on page 6]

AS THE TWIG IS BENT Young adults who had played the Good Behavior Game in first and second grade were less likely to smoke cigarettes or abuse drugs than those who hadn’t played the game. Males whose first-grade teachers identified them as aggressive and disruptive benefited the most.



ALSO IN THIS ISSUE

Research Findings

- 8** Young Opioid Abusers Benefit From Extended Buprenorphine-Naloxone Treatment
- 10** Vouchers Boost Smoking Abstinence During Pregnancy
- 11** Attention to Bipolar Disorder Strengthens Substance Abuse Treatment

Director’s Perspective

- 2** Helping Doctors Become First Responders to Substance Abuse

Research in Brief

- 3** • Some Teens Reporting Nonmedical Use of Prescriptions Develop Dependence Disorders • Peer Interaction Enhances Adolescent Rats’ Drug Reward • Stroop Test Identifies Patients at Risk for Treatment Dropout • Genetic Overlap Between Substance Abuse and Bipolar Disorder

NIDA at Work

NIDA’s Genetics Workgroup Directs Search for Genes That Influence Addiction

Bulletin Board

- 14** • Dr. Phil Skolnick Now Leads NIDA’s Medications Development Efforts • How-To Guides Provide Tips for Publishing Addiction-Related Articles • Dr. James A. Inciardi (1939–2009)

Tearoff

- 15** Reality Videos Bring NIDA Scientists to Web Site for Teens

- 16** What the Numbers Say

■ GOOD BEHAVIOR GAME

[Continued from page 1]

of behaviors, such as sitting quietly, that will be rewarded. They then divide their classes into teams for the GBG. Later, when students are working independently, the teacher announces that the game is in play. Teams whose members maintain the stated behaviors during the game period receive prizes, such as stickers. Students who act out or commit other infractions incur a checkmark, lessening their teams' chances for prizes.

The game is played for brief intervals at first; the time and frequency are gradually lengthened as the children gain practice in controlling their behaviors. Eventually, to instill constant attentiveness to appropriate behavior, the teacher stops announcing when the game is in play and awards the prizes to successful teams only at the finish of a GBG period.

The GBG was devised in the 1960s by Harriet H. Barrish, Muriel Saunders, and Montrose M. Wolf at the University of Kansas. Its underlying concept is that team members, wanting to win, will pressure—and help—each other to meet the behavioral objectives.

“When kids come to school, they often don’t know how to behave like students. They have to be taught. It’s not intuitive, parents don’t always get it, and teachers aren’t being trained to deal with it,” says Dr. Kellam. “This is the issue the GBG attempts to address.”

And the stakes are high: Children who do not adapt to the student role early in their school careers risk rejection by peers, failure to achieve academically, and conflict with their teachers and other authority figures. The consequences of these problems in the teen years include increased risk for self-destructive and antisocial behaviors, Dr. Kellam explains.

Small-scale, more limited studies have provided evidence that the GBG might

alleviate behavioral problems in the early grades. The Baltimore project is the first randomized field trial of the GBG’s effectiveness, and the first to examine its impact on adolescent outcomes outside of school. Dr. Kellam notes that the participation of entire classrooms, representative of large areas of Baltimore, makes the results applicable across that city and perhaps similar ones.

LONG-RANGE BENEFITS

In 1985, Dr. Kellam and colleagues identified three to four schools in each of five demographically distinct neighborhoods, ranging in ethnicity from mostly African-American to mostly White and in economic status from very low to moderate income. Altogether, more than 1,000 children from 41 first-grade classes in 19 schools either used the GBG or served as controls in the study.

During the first weeks of school, teachers in both the GBG and the control classes assessed each student’s behavior; about 12 percent of the males and 3 percent of the females were classified as aggressive and disruptive. Teachers in the game-playing classrooms divided these high-risk students roughly equally among the teams.

The teachers using the GBG began by implementing the game for 10 minutes three times a week; they then increased its frequency and duration as the school year progressed. The same children continued to play the GBG or serve as controls through second grade. The game did not cut into instructional time because it took place when students were at their desks reading, completing work assignments, or engaging in other quiet activities.

About 15 years later, the researchers located and interviewed approximately 75 percent of children, now aged 19 to 21. The proportion of GBG alumni who reported a drug use disorder was 12 percent, compared with 19 percent among former con-

trols. The youths who played the GBG were also less likely to smoke, to report alcohol use disorder or antisocial personality disorder, or to have considered or attempted suicide.

The GBG was more advantageous to boys than to girls, except with respect to alcohol abuse, where the game’s impact was similar in both genders. The greatest benefits were realized by boys whose first-grade teachers classified them as aggressive and disruptive. Among these boys, 29 percent who played the GBG reported

MALES BENEFIT ACROSS THE BOARD

As they grew, boys who had participated in the Good Behavior Game in first and second grade in 1985–1986 used fewer social services than a control group.

	Game Players	Controls
School Services*	9%	14%
Mental Health or Medical Services	13%	18%
Drug Abuse Treatment	4%	9%
Social Services	1%	6%
Criminal Justice System	12%	20%

*For problems with behavior, emotions, drugs, or alcohol.

drug use disorder, compared with 68 percent of controls (see graph, page 1).

“We did not anticipate that a single intervention would have such a major impact,” says Dr. Kellam, who led the study. “The key to the GBG’s efficacy seems to be its effect on aggressive and disruptive boys. These are the kids who get sent to the principal’s office and eventually expelled, so these are the kids who most need help.”

Saving Money on Treatment and Social Services

By lowering teens' rates of smoking, substance abuse and addiction disorders, antisocial personality disorder, and suicidal tendencies, the Good Behavior Game (GBG) yielded economic dividends to public agencies that address those problems. Study recipients' self-reports and researchers' reviews of school and court records indicated that from first grade to age 19–21, GBG alumni, compared with controls, were assigned to fewer school-based services such as individual therapy or placement in special classrooms; they also has less involvement with juvenile and adult criminal justice systems.

The GBG's effect on males accounted for the entire reduction in service use. Roughly 25 percent of males who played the game received one or more services, compared with 38 percent in the control group. In contrast, among females about 19 percent of both players and controls received at least one service.

The greatest reduction was in the use of school services by males who were classified by their first-grade teachers as aggressive and disruptive. Among this group—who made up about 12 percent of all study participants—17 percent of those who played the game used school services, compared with 33 percent of those who did not play. “That’s twice the number of aggressive children that receive these expensive school services,” notes Dr. Jeanne Poduska, who oversaw the young-adult followup while employed by Johns Hopkins and has analyzed the service data while employed at the American Institutes for Research in Washington, D.C.

Dr. Poduska and colleagues propose an overall strategy of using the universal intervention in early grades, followed by more



targeted interventions for children who have persistent behavioral problems, and finally mental health treatment for an even more selective group.

Dr. Elizabeth Robertson, chief of prevention research in NIDA's Division of Epidemiology, Services and Prevention Research, says the report shows that behavioral training in the elementary grades can place students on a more productive course and reduce costs for a wide range of social programs. “It is an example of why early intervention makes sense from an economic standpoint,” she says.

SOURCE

Poduska, J.M., et al. 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, 2008.

TRAINING REQUIREMENTS

In 1986, the teachers who had implemented the GBG in their classrooms the previous year did so again with another cohort of over 1,000 first-graders. The teachers had received 40 hours of preliminary training plus mentoring during the first year, but none during the second year. Followup interviews when these children

were 19–21 years old revealed that the magnitude of reductions in smoking and drug abuse were not as great as they had been for the original 1985 cohort. According to the researchers, this falloff in efficacy of the GBG indicates a need for continued teacher mentoring and support.

The researchers have refined their training methods since 1985, but Dr.

Jeanne Poduska of the American Institutes for Research in Washington, D.C., continues to search for better ways to train and motivate teachers. “The question we’re trying to address is: What support does a teacher need to learn a new practice and sustain it over time?” Dr. Poduska says.

[Continued on page 9]

■ GOOD BEHAVIOR GAME

[Continued from page 7]

In addition to improving student outcomes, Dr. Kellam notes, the GBG gives teachers a method of managing classroom behavior. He says that many teachers find that their preparation for behavioral management is insufficient, and struggles with class behavior are a primary cause of teacher burnout.

Overall, the researchers conclude, their recent work supports “real optimism” that a single early, inexpensive intervention can improve a wide variety

of outcomes, especially for the children at highest risk. Dr. Kellam says that the study is the first to link a universal childhood intervention with reduced frequency of a psychiatric disorder.

Dr. Elizabeth Robertson, chief of prevention research in NIDA’s Division of Epidemiology, Services and Prevention Research, calls the study results “stunning.” She says, “What we are seeing is a change in the life-course trajectories of these kids as a result of putting them on the right path early on.” If the GBG were to be widely adopted in schools, she adds, the public health impact could be huge. ■

SOURCES

Kellam, S.G., et al. Effects of a universal classroom behavior management program in first and second grades on young adult problem outcomes. *Drug and Alcohol Dependence* 95(Suppl. 1): S1–S4, 2008.

Kellam, S.G., et al. 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, 2008.

Petras, H., et al. 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, 2008.

Wilcox, H.C., et al. The impact of two universal randomized first- and second-grade classroom interventions on young adult suicide ideation and attempts. *Drug and Alcohol Dependence* 95(Suppl. 1): S60–S73, 2008.