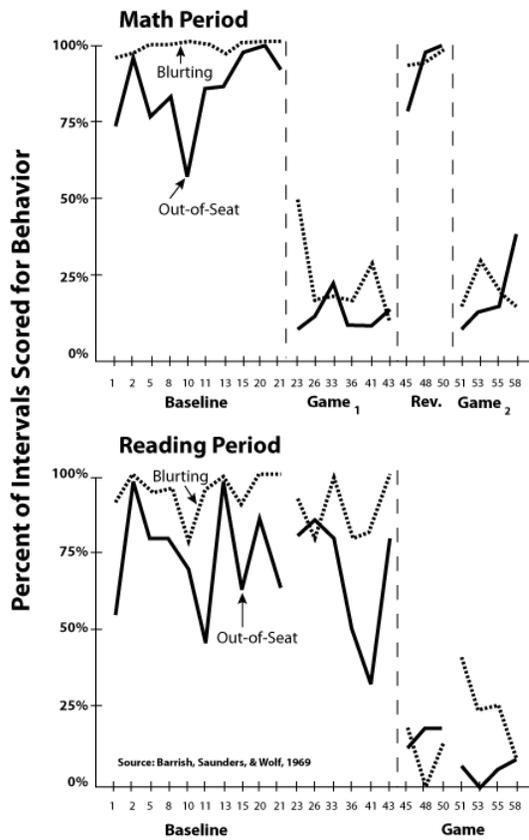
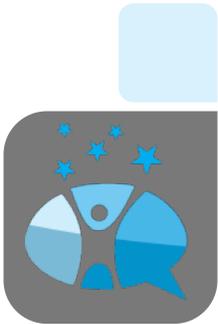
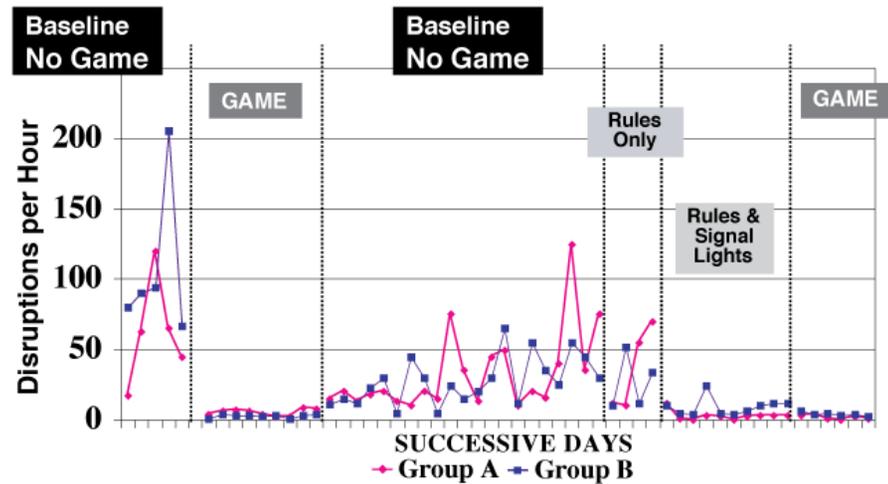




Muriel Saunders, the teacher who invented GBG



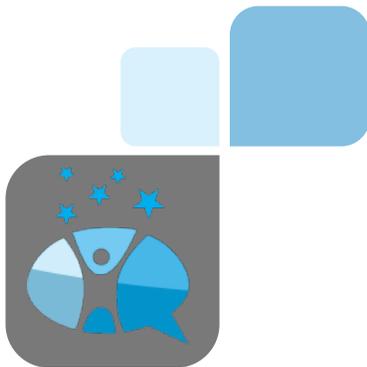
Student Behavior During Reading



Adapted from Mcland, M.B., & Stachnik, T.J. (1972). Good Behavior Game: a replication and systematic analysis, *Journal of Applied Behavior Analysis*, 3, 45-52

Nearly 20 such studies were published like this before 1990: What do you call this thing?

These Hopkins' studies show GBG has bigger effects than "just" behavior.



The Short-Term Impact of Two Classroom-Based Preventive Interventions on Aggressive and Shy Behaviors and Poor Achievement

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CARLA FORD
LEONARD WHEELER
Baltimore City Public Schools

Two classroom-based preventive interventions were carried out on an epidemiologically defined, varied population of children in a metropolitan area in the United States. This is a report of the short-term impact and specificity of the two interventions from fall through spring of first grade. The first intervention, the Good Behavior Game, was aimed at reducing aggressive behavior and shy behavior. Aggressive behavior has been shown to be an important developmental antecedent in first grade of later delinquency and heavy drug use, particularly when coupled

We acknowledge the contributions of the city of Baltimore, its families and children, and the administration, faculty, and staff of the Baltimore City Public Schools. In particular, we would like to thank Walter Amprey, Superintendent of Baltimore City Public Schools; Lillian Gonzales and Patsy Blacksheare, Deputy Superintendents; Juanita Lewis, Director; Denise Borders, Chief of Accountability; Robert Solomon, Director, Special Education; Carla Ford, Specialist, Early Childhood Education; Louise Fink, Coordinator, Social Work Services; Dale Parker-Brown, Director, Compensatory Education; Matthew Riley, Director of the Eastern District; and Willie Foster, Director of Middle Schools. We also thank Alice Brogden for manuscript control and production; Fionnuala Regan for editorial preparation; and Pamela Spencer and Maria Corrada-Bravo for their contributions to data analyses. We thank Alan Harris for contributing to the development of the GBG intervention, and Lisa Crockett for her help in developing the Peer Assessment Inventory.

The studies on which this article is based have been supported by the following grants, with supplements from the National Institute on Drug Abuse: National Institute of Mental Health (NIMH) Grant No. P50 MH38725, Epidemiologic Prevention Center for Early Risk Behavior; NIMH Grant No. 1R01 MH42968, Periodic Outcome of Two Preventive Trials; NIMH Grant No. 1R01 MH40859, Statistical Methods for Mental Health Preventive Trials.

Correspondence and requests for reprints should be sent to Lawrence Dolan, Department of Mental Hygiene, School of Hygiene and Public Health, 624 North Broadway, Baltimore, MD 21205.

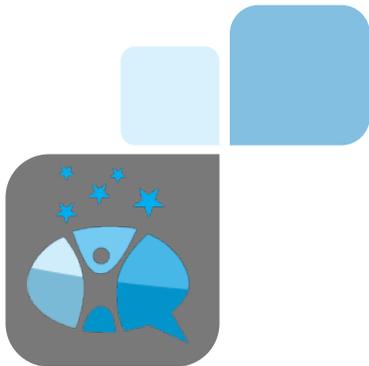
Proximal Impact of Two First-Grade Preventive Interventions on the Early Risk Behaviors for Later Substance Abuse, Depression, and Antisocial Behavior¹

Nicholas S. Ialongo,² Lisa Werthamer, and Sheppard G. Kellam
Johns Hopkins University

C. Hendricks Brown, Songbai Wang, and Yuhua Lin
University of South Florida

We assessed the immediate effects of two universal, first-grade preventive interventions on the proximal targets of poor achievement, concentration problems, aggression, and shy behaviors, known early risk behaviors for later substance use/abuse, affective disorder, and conduct disorder. The classroom-centered (CC) intervention was designed to reduce these early risk behaviors by enhancing teachers' behavior management and instructional skills, whereas the family-school partnership (FSP) intervention was aimed at improving parent-teacher communication and parental teaching and child behavior management strategies. Over the course of first and second grades, the CC intervention yielded the greatest degree of impact on its proximal targets, whereas the FSP's impact was somewhat less. The effects were influenced by gender and by preintervention levels of risk. Analyses of implemen-

¹The writing of this paper was supported by a grant from the National Institute of Mental Health (Epidemiologic Prevention Center for Early Risk Behaviors, NIMH 5 PO MH38725, Sheppard G. Kellam, P.I.). We would like to thank the Baltimore City Public Schools for their continuing collaborative efforts, and the parents, children, teachers, principals, and school psychologists/social workers who participated. We would also like to express our appreciation to Nancy Karweit, Ph.D., Mary Alice Bond, M.A., Carolyn Webster-Stratton, Ph.D., Joyce Epstein, Ph.D., Irving Sigel, Ph.D., and Ruth Kandel, Ed.D., each of whom made significant contributions to the development of the interventions described in this paper. ²All correspondence and reprint requests should be directed to Dr. Ialongo, Department of Mental Hygiene, School of Hygiene and Public Health, Johns Hopkins University, 624 North Broadway, Baltimore, MD 21205.



OUTCOMES	STUDENT GROUPS	GBG CLASSROOM	STANDARD CLASSROOM
Drug abuse and dependence disorders	All males	19 percent 	38 percent
	Highly aggressive males	29 percent 	83 percent
Regular smoking	All males	6 percent 	19 percent
	Highly aggressive males	0 percent 	40 percent
Alcohol abuse and dependence disorders	All males and females	13 percent 	20 percent
Antisocial personality disorder (ASPD)	Highly aggressive males	40 percent 	100 percent
Violent and criminal behavior (and ASPD)	Highly aggressive males	34 percent 	50 percent
Service use for problems with behavior, emotions, drugs, or alcohol	All males	25 percent 	42 percent
Suicidal thoughts	All females	9 percent 	19 percent
	All males	11 percent 	24 percent

The Good Behavior Game: A Best Practice Candidate as a Universal Behavioral Vaccine

Dennis D. Embry¹

A "behavioral vaccine" provides an inoculation against morbidity or mortality, impacting physical, mental, or behavior disorders. A historical example of a behavioral vaccine is antiseptic hand washing to reduce childbed fever. In current society, issues with high levels of morbidity, such as substance abuse, delinquency, youth violence, and other behavioral disorders (multi-problems), cry out for a low-cost, widespread strategy as simple as antiseptic hand washing. Congruent research findings from longitudinal studies, twin studies, and other investigations suggest that a possibility might exist for a behavioral vaccine for multiproblem behavior. A simple behavioral strategy called the Good Behavior Game (GBG), which reinforces inhibition in a group context of elementary school, has substantial previous research to consider its use as a behavioral vaccine. The GBG is not a curriculum but rather a simple behavioral procedure from applied behavior analysis. A proximately 20 independent replications of the GBG across different grade levels, different types of students, different settings, and some with long-term follow-up show strong, consistent impact on impulsive, disruptive behaviors of children and teens as well as reductions in substance use or serious antisocial behaviors. The GBG, named as a "best practice" for the prevention of substance abuse or violent behavior by a number of federal agencies, is unique because it is the only practice implemented by individual teachers that is documented to have long-term effects. Presently, the GBG is only used in a small number of settings. However, near universal use of the GBG, in major political jurisdictions during the elementary years, could substantially reduce the incidence of substance use, antisocial behavior, and other adverse developmental or social consequences at a very modest cost, with very positive cost-effectiveness ratios.

KEY WORDS: substance abuse prevention; violence prevention; public policy; best practice.

INTRODUCTION

A behavioral vaccine is a simple, scientifically proven routine or practice put into widespread daily use that reduces morbidity and mortality. A powerful example comes from an epidemic that occurred 150 years ago.

During the nineteenth century, women died in childbirth at alarming rates in Europe and the United States. Up to 25% of women who delivered their babies in hospitals died from childbed fever (puerperal sepsis), discovered later to be caused by *Streptococcus pyogenes* bacteria.

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In the late 1840s, Dr Ignaz Semmelweis worked in the maternity wards of a Vienna hospital. By meticulous observation, he discovered that the mortality rate in a delivery room staffed by medical students was up to three times higher than in a second delivery room staffed by midwives. Semmelweis postulated that the students might be carrying the infection from their dissections to mothers giving birth. He tested the hypothesis by having doctors and medical students wash their hands with a chlorinated solution before examining women in labor. The mortality rate in his maternity wards eventually dropped to less than 1%. Washing of hands with antiseptic solution—a behavioral vaccine—now saves millions of lives every year. Today, the Centers of Disease Control and Prevention (CDC) web site states, "[A]ntiseptic" hand washing is

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Behavioral Vaccines and Evidence Based Kernels: Non-Pharmaceutical Approaches for the Prevention of Mental, Emotional and Behavioral Disorders ¹

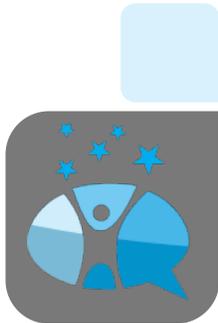
Dennis D. Embry, Ph.D.² For the Psychiatric Clinics of North America
PAXIS Institute

Abstract

In March of 2009, the Institute of Medicine issued a new report on the Prevention of Mental, Emotional and Behavioral Disorders Among Young People.¹ Fundamentally, the report calls for ending the rationing of prevention of mental, emotional and behavioral disorders (MEBs) among America's children, youth and young adults. Continued rationing of access to scientifically proven prevention causes a serious threat to the country's national security² and to our economic competitiveness compared to 22 other rich countries.³ Such MEBs are also the leading preventable cost center for local, state and the federal governments.^{1, 4} These preventable MEBs cause health-care costs to continue to spiral up.

The IOM Report calls for a public-health approach to MEBs—basically like how America and Canada dealt with the polio epidemic, measles, mumps, car passenger injuries to children, and accidental poisoning from medications and toxic chemicals. Why is this necessary? America's rates of some of these mental, emotional and behavioral problems are worse than other developed countries,^{5, 6} and rates of some of these problems have objectively increased over the past 20-50 years in America.⁷ The attributes of a public-health approach for MEBs are defined in the article.

The article discusses multiple examples of how public health approaches might reduce or prevent MEBs using low-cost evidence based kernels, which are fundamental units of behavior. Such kernels can be used repeatedly, which then act as "behavioral vaccines" to reduce morbidity or mortality and/or improve human wellbeing. This document calls for six key policy actions to improve mental, emotional and behavioral health in young people—with resulting wellbeing and economic competitiveness of North America and reducing health-care costs.



About 10K
teachers
now trained

The Next Big Thing in Child and Adolescent Psychiatry

Interventions to Prevent and Intervene Early in Psychiatric Illnesses



Erica Z. Shoemaker, MD, MPH^{a,*}, Laura M. Tully, PhD^b,
Tara A. Niendam, PhD^b, Bradley S. Peterson, MD^c



- Prevention • Health promotion • Maternal depression • Familial depression
- Substance abuse • Adolescent depression • Ultra high risk for psychosis

KEY POINTS

- Psychiatrists have long spent much of their time working to reduce symptom burden in chronic conditions in their patients. However, an era is beginning in which psychiatrists can aim to prevent mental illness, reducing the number of people affected by mental illness in their lifetimes.
- Treating depression in mothers can have great benefit in treating and preventing mental illness in their children.
- Neuroimaging and psychological assessment may help clinicians to target preventive treatments to children who are at the highest risk of developing familial depression.
- **Universal prevention programs delivered by teachers in schools can reduce the numbers of children who grow up to abuse alcohol and illicit drugs, and psychiatrists need to advocate strongly in their communities for the funding support and implementation of these programs.**
- Interactive video games that teach cognitive behavioral techniques may provide a useful tool for early intervention in cases of mild to moderate depression in adolescents.
- Intensive psychosocial interventions reduce by more than one-third the number of youth who transition from the prodromal ultrahigh-risk state to first-episode psychosis.

^a Department of Psychiatry and Behavioral Sciences, University of Southern California, 2250 Alcazar Street, Suite 2200, Los Angeles, CA 90033, USA; ^b Department of Psychiatry, UC Davis Imaging Research Center, University of California, Davis, 4701 X Street, Suite E, Sacramento, CA 95817, USA; ^c Institute for the Developing Mind, Children's Hospital Los Angeles, University of Southern California, 4650 Sunset Boulevard, MS# 135, Los Angeles, CA 90027, USA

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PAX named, “the next big thing in universal prevention of psychiatric disorder...”



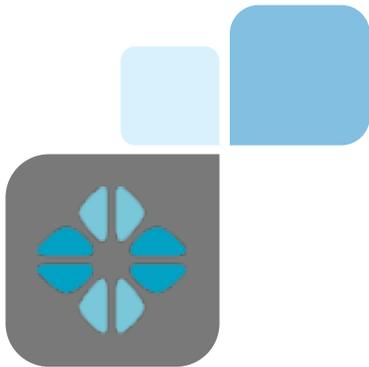
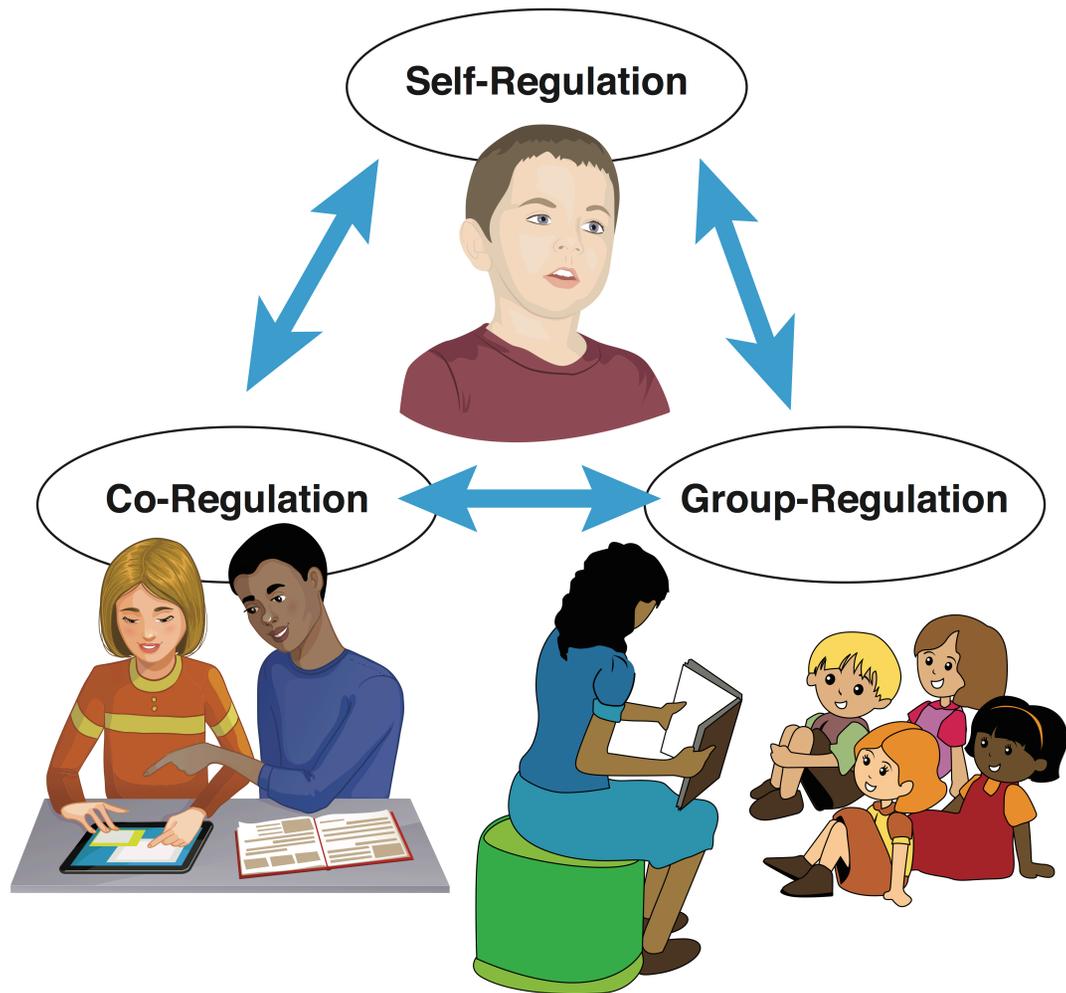
[PAX GBG's] targeting of self-regulation in its interventions is a sensible choice, given that the development of the capacity for effective self-regulation in childhood leads to more adaptive interpersonal interactions, more positive health behaviors, improved cognitive flexibility, and better impulse control.

It predicts future academic and occupational achievement and reduces the severity or likelihood of manifesting **psychiatric symptoms.”**

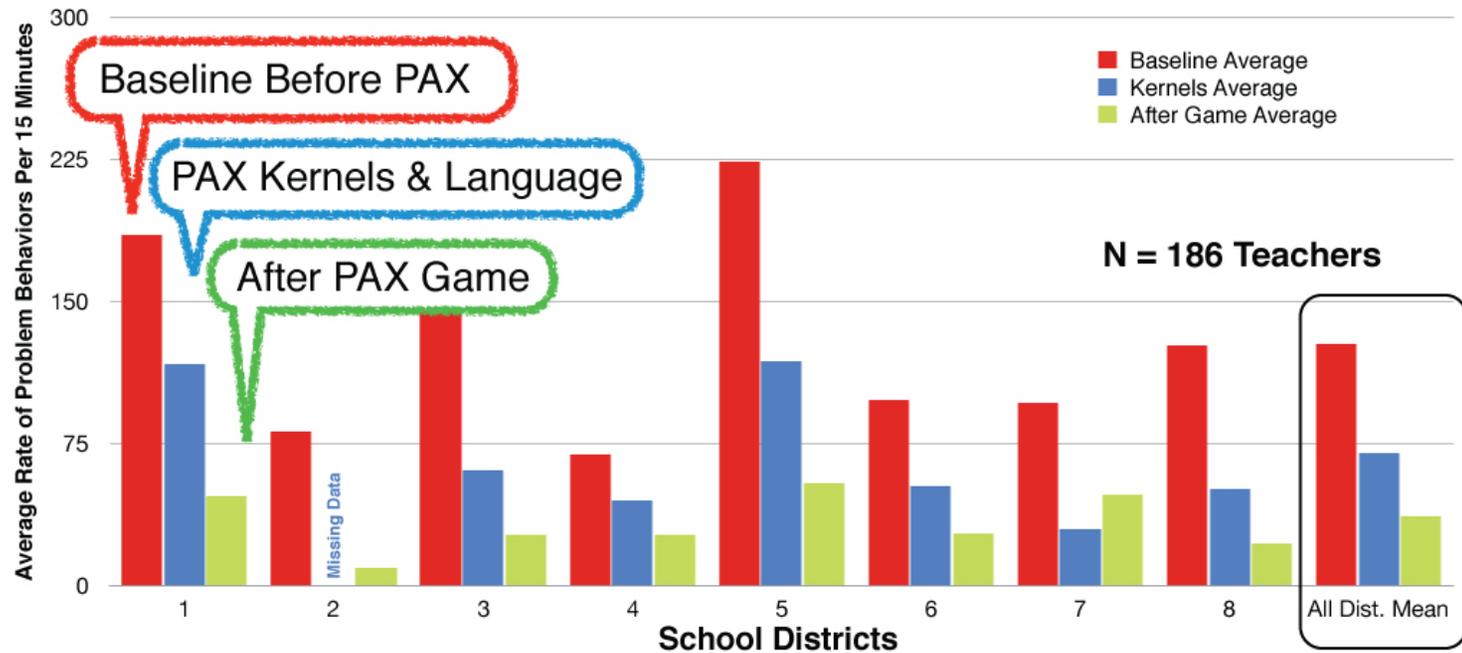
Shoemaker EZ, Tully LM, Niendam TA, Peterson BS. The Next Big Thing in Child and Adolescent Psychiatry: Interventions to Prevent and Intervene Early in Psychiatric Illnesses. *The Psychiatric Clinics of North America* 2015;38:475-94.



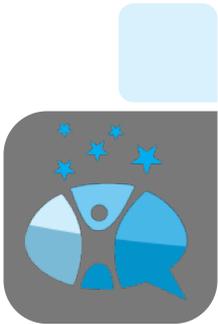
All three levels of classroom regulation are a function of antecedents (**cues**), peer and adult **reinforcements**, relational-frames (**purpose language**), and personal physiology (**body states**) in real time.



3-Month Impact of PAX in Eight US School Districts on Disturbing, Disruptive, and Inattentive Behaviors Per 15 minutes

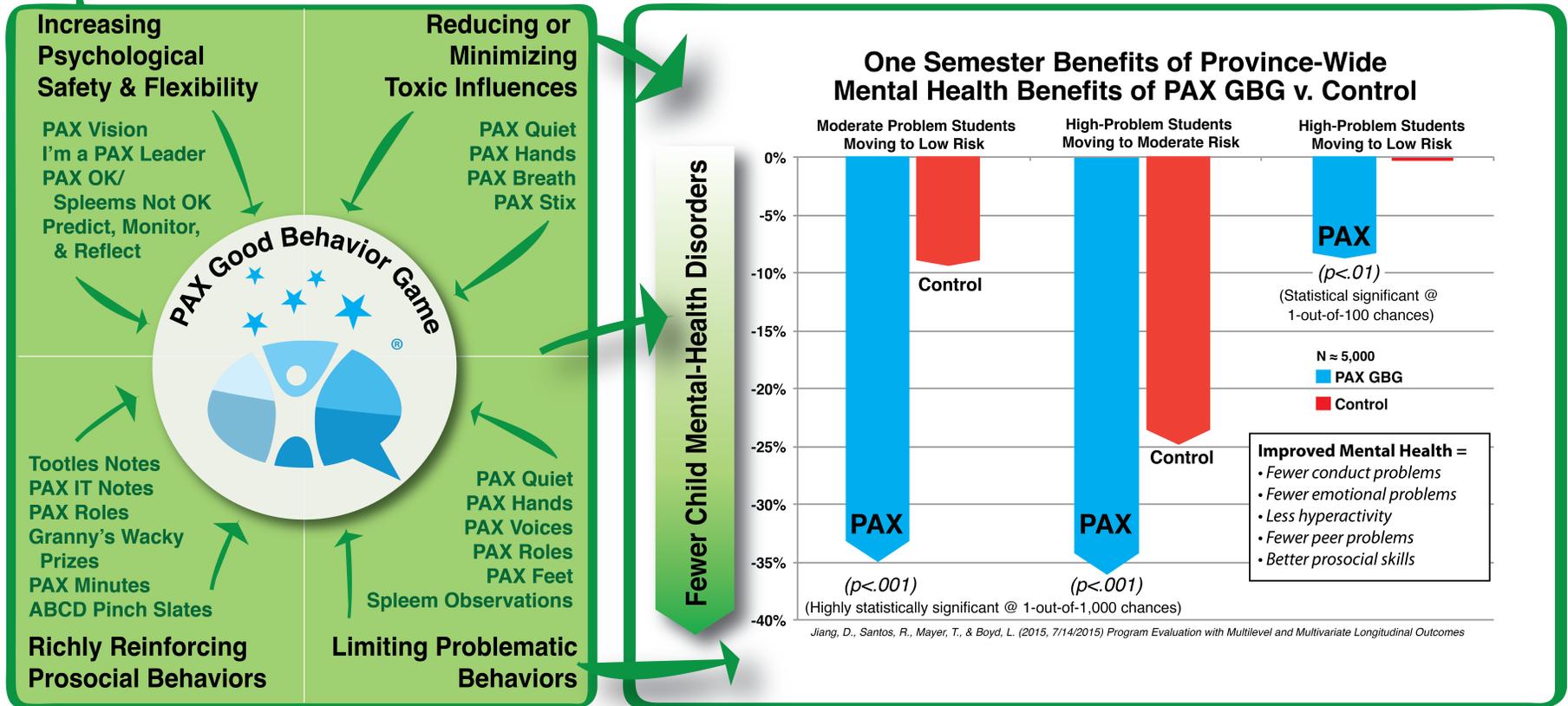


These proximal effects are widely replicated across the U.S.



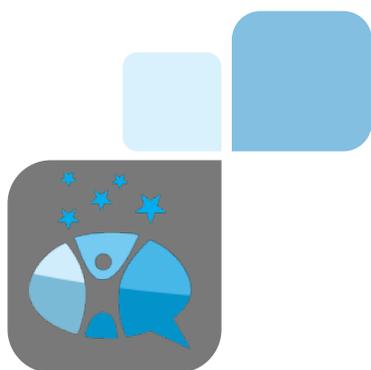


Impact of the Nurturing Environment Created by PAX Good Behavior Game on Children

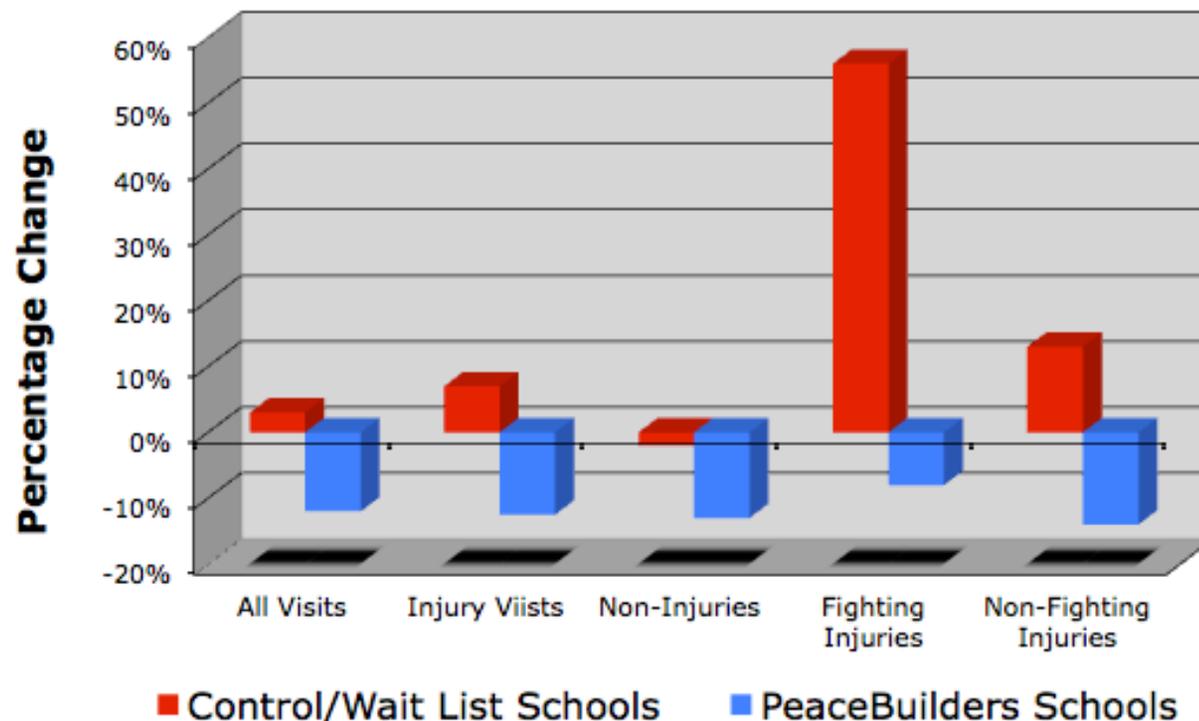


Fewer Child Mental-Health Disorders

Our early study tested what are the PAX kernels and cues, which improved medically coded health indicators...

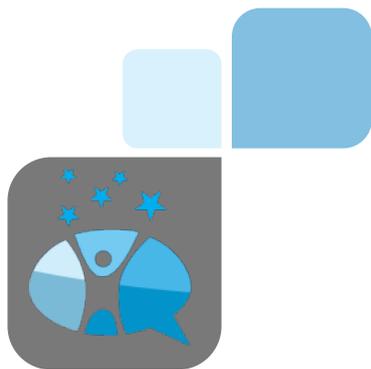


CDC Nurses Office Study

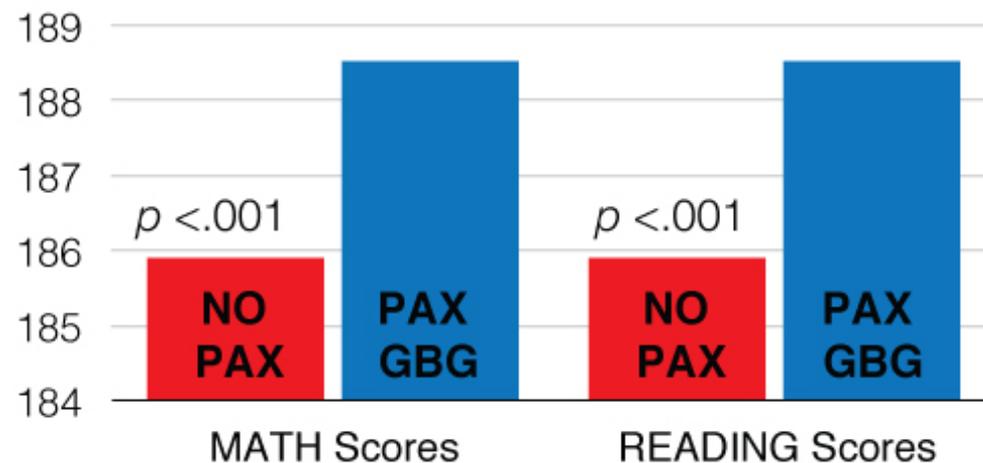


Krug, E. G., Brener, N. D., Dahlberg, L. L., Ryan, G. W., & Powell, K. E. (1997). The impact of an elementary school-based violence prevention program on visits to the school nurse. *American Journal of Preventive Medicine*, 13(6), 459-463.

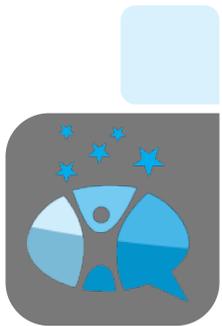
These changes in behavior and self-regulation translate into improved academics



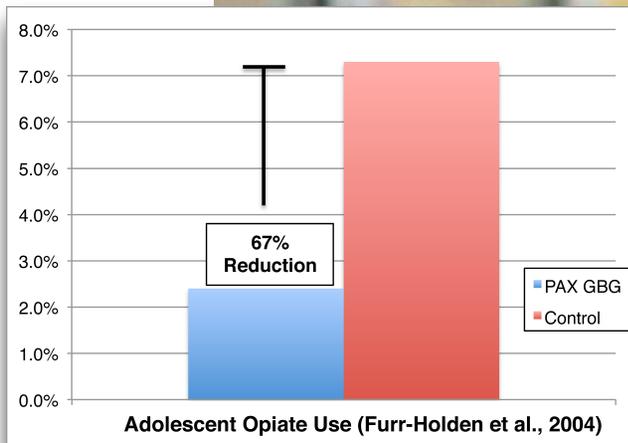
Improvements on Standard Measures of Academic Progress in Six Districts in High Poverty Schools in Ohio



Source: Weis, R., Osborne, K. J., & Dean, E. L. (2015). Effectiveness of a universal, interdependent group contingency program on children's academic achievement: A countywide evaluation. *Journal of Applied School Psychology, 31*(3), 199-218.



A teacher and students explain PAX...



Massachusetts will get \$11.7 million from the Opiate Cures Bill, and 15% or \$1.7 million must go for prevention.



These students are in the Ohio epicenter of opiate epidemic:
Just one year of exposure to PAX GBG reduces opiate use



Please bring out the good in every child in Massachusetts



Predicted Benefits of PAX GBG in Your School, District, Tribe or Community When First Grade Students Reach Adulthood After 2 Years of PAX GBG Exposure*

Site Estimate for: Any Teacher In Massachusetts who reaches

Enter number of First Graders at school, district, Tribe or community>>>>>>>	100	<<< Enter number of First Graders
--	-----	-----------------------------------

- 9 Fewer young people will need any form of special education services
- 6 More boys will likely graduate from high school.
- 7 More boys will likely enter university
- 9 More girls will likely graduate from high school (less teen pregnancy)
- 7 More girls will likely enter university
- 1 Fewer young people will commit and be convicted of serious violent crimes
- 10 Fewer young people will likely develop serious drug addictions
- 7 Fewer young people will likely become regular smokers
- 4 Fewer young people will likely develop serious alcohol addictions
- 5 Fewer young people will likely contemplate suicide
- 7 Fewer young people will likely attempt suicide

\$1,302,000	Predicted financial net savings to students, families, schools, communities, state/federal governments
\$23.67	Estimated Cost of PAX GBG Materials Per Child for Lifetime Protection
	Estimated Direct/Indirect materials costs for target group \$2,367
\$22.00	Estimated Cost of External Training & Technical Supports Per Teacher Prorated per Child's Lifetime
	Estimated Total Costs of Training Costs for Group \$2,200
\$26.80	Estimated Cost of Internal Supports for Implementation and Maintenance by Teachers Prorated per Child's Lifetime
	Estimated Total Internal Support Costs for Group \$2,680