



Randomized Trials and Case Replications of the Good Behavior Game®*/ PAX Good Behavior Game®

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The PAX Good Behavior Game is implemented in a single classroom for the lifetime benefits of the teacher and students involved. The PAX Good Behavior Game is implemented in entire schools, districts, states, provinces, and countries at scale to create a public health benefit at the population level. Today, tens of thousands of teachers have implemented the PAX Good Behavior Game across the world, affecting millions of children.

The PAX Good Behavior Game is the single most proven classroom-based preventive intervention and improves an array of outcomes for teachers, students, families, and communities. The PAX Good Behavior Game® and Good Behavior Game® are registered trademarks of PAXIS Institute. The PAX Good Behavior Game derives from the original Good Behavior Game recipe developed by Jaylan Turkkan and implemented in the groundbreaking randomized control trials conducted by Johnson Hopkins University and other institutions. These trials involved over 23,000 participants and demonstrated significant improvements in academic, behavioral, and psychiatric outcomes for young people when they received at least one year of the PAX Good Behavior Game.

PAXIS Institute is the official purveyor of the intervention as it is continuously implemented and improved in comparative effectiveness trials by Johns Hopkins University. Dr. Dennis Embry, developer of the PAX Good Behavior Game, is a graduate of the University of Kansas and the Department of Human Development and Family Life. This university department consisted of pillars of behaviorism including Todd Risley, Don Baer, and Montrose Wolf and gave rise to the Journal of Applied Behavior Analysis. The PAX Good Behavior Game is a direct descendent in function, topography, and even institution of the original intervention developed by Muriel Saunders, Harriet Barrish, and Montrose Wolf at the University of Kansas.

PAXIS Institute encourages and implores for the peer-reviewed publication of all studies involving the PAX Good Behavior Game – regardless of outcome. Continuous study adds to the breadth of understanding that have built and will continue to build and perfect the intervention as it brings Peace, Productivity, Health, and Happiness to people all over the world.

To explore and review the pure science involving PAX and anything else that can be used to improve the lives of humans, visit the National Library of Medicine at www.pubmed.gov

Since 1999 when PAXIS began real world replications, approximately 60,000 teachers have been trained to use the Good Behavior Game® by PAXIS Institute in 38 states, multiple provinces of Canada, as well as First Nations in North America, Europe, and Australia. Randomized trials and scale-up/replication studies related to Good Behavior Game (Cohorts 1-2) and PAX Good Behavior Game commercialized for replication at Hopkins and other sites nationally or internationally include:

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Our Randomized Trials at Johns Hopkins

All past and current randomized trials at Johns Hopkins used randomized comparative effectiveness trials.

- 1. Citations for Cohort 1 Randomized Trial at Johns Hopkins (*principal investigator: Kellam*) [6-21], which involved two years of exposure to GBG (1st and 2nd grade).
- 2. Citations for Cohort 2 Randomized Trial at Johns Hopkins (*principal investigator: Ialongo*) [14, 21-26], which had one year of exposure in 1st grade.
- 3. Citations for Cohort 3 Randomized Trial at Johns Hopkins in schools and on-line (*principal investigator: Ialongo*) [21, 27-35]

Our Other Randomized PAX GBG or Precursor/Replication Trials

- 4. Citations for Randomized Trial in Pennsylvania in Afterschool Settings (*principal investigator: Phillips-Smith*) [36-39]
- 5. Citations for Population-Level (All Districts), Randomized Trial in Manitoba, Canada (*Manitoba Centre for Health Policy/Healthy Child Manitoba*) [40, 41]
- 6. Citations for Randomized Trial in Alberta, Canada (principal investigators: Prinz and Embry) [42]
- 7. Citations for Randomized Trials in the European Union (Estonia and Northern Ireland) [43, 44]
- 8. Citations for PeaceBuilders Randomized Trial K-5 schools (precursor of evidence-based kernels plus GBG) (principal investigator: Embry) [5, 45-47]

Our PAX GBG Case Studies or Population-Level Replications

- 9. Whole County Evaluation of PAX GBG impact on standardized reading and math scores [48]
- 10. Case PAX GBG replication in the Republic of Ireland [49]
- 11. Case PAX GBG replication in 200+ K-8 classrooms in South Chicago [50].
- 12. Case PAX GBG rapid 8-week replication in 186 Title I classrooms across 8 school districts commissioned by the Substance Abuse and Mental Health Services Administration [51].

Citations and References

- Turkkan, J., The Good Behavior Game Manual. 1988, John Hopkins School of Hygiene and Public Health, Department of Mental Hygiene: Baltimore, MD. p. 38.
- Embry, D.D. and A. Biglan, Evidence-Based Kernels: Fundamental Units of Behavioral Influence. Clinical Child & Family Psychology Review, 2008. 11(3): p.
- Embry, D.D., Community-Based Prevention Using Simple, Low-Cost, Evidence-3. Based Kernels and Behavior Vaccines. Journal of Community Psychology, 2004. 32(5): p. 575.
- Embry, D.D., The Good Behavior Game: A Best Practice Candidate as a Universal Behavioral Vaccine. Clinical Child & Family Psychology Review, 2002. 5(4): p.
- Flannery, D.J., et al., Initial behavior outcomes for the PeaceBuilders universal school-based violence prevention program. Developmental Psychology, 2003. 39(2): p. 292-308
- Kellam, S.G., et al., The course and malleability of aggressive behavior from early first grade into middle school: Results of a developmental epidemiology-based preventive trial. Journal of Child Psychology and Psychiatry, 1994. 35: p. 259-281.
- 7 Kellam, S.G., et al., 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, 1998. 10: p. 165-185.
- Kellam, S.G. and J.C. Anthony, Targeting early antecedents to prevent tobacco 8. smoking: Findings from an epidemiologically based randomized field trial. American Journal of Public Health, 1998. 88(10): p. 1490-1495.
- 9. Kellam, S.G., et al., Erratum: The effect of the level of aggression in the first grade classroom on the course and malleability of aggressive behavior into middle school. Development & Psychopathology, 2000. 12(1): p. 107.
- Kellam, S.G., et al., "The effect of the level of aggression in the first grade classroom on the course and malleability of aggressive behavior into middle school": Erratum. Development & Psychopathology, 1999. 11(1): p. 193.
- 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 & Alcohol Dependence, 2008(Special Issue): p. 15.
- Kellam, S., et al., Effects of a universal classroom behavior management program in first and second grades on young adult behavioral, psychiatric, and social outcomes,. Drug & Alcohol Dependence, 2008(Special Issue): p. 24.
- Brown, C.H., et al., Prevention of aggressive behavior through middle school using a first-grade classroom-based intervention, in Recognition and prevention of major mental and substance use disorders. 2007, Arlington, VA, US: American Psychiatric Publishing, Inc. p. 347-369.
- Petras, H., et al., When the course of aggressive behavior in childhood does not predict antisocial outcomes in adolescence and young adulthood: An examination of potential explanatory variables. Development & Psychopathology, 2004. 16(4): p. 919
- Petras, H., et al., Utility of TOCA-R scores during the elementary school years in identifying later violence among adolescent males. Journal of the American Academy of Child & Adolescent Psychiatry, 2004. 43(1): p. 88-96.
- Wilcox, H.C., et al., The impact of two universal randomized first- and secondgrade classroom interventions on young adult suicide ideation and attempts. Drug & Alcohol Dependence, 2008(Special Issue): p. 14.
- Wang, Y., et al., The effect of two elementary school-based prevention interventions on being offered tobacco and the transition to smoking. Drug Alcohol Depend, 2012. **120**(1-3): p. 202-8.
- Kellam, S.G., et al., The Impact of the Good Behavior Game, a Universal Classroom-Based Preventive Intervention in First and Second Grades, on High-Risk Sexual Behaviors and Drug Abuse and Dependence Disorders into Young Adulthood. Prev Sci, 2012.
- Kellam, S.G., et al., The good behavior game and the future of prevention and treatment. Addict Sci Clin Pract, 2011. 6(1): p. 73-84.
- Yan, W., et al., Depressed mood and the effect of two universal first grade preventive interventions on survival to the first tobacco cigarette smoked among urban youth. Drug and Alcohol Dependence, 2009. 100(3): p. 194-203.
- Acosta, J.D., et al., A cluster-randomized trial of restorative practices: An illustration to spur high-quality research and evaluation. Journal of Educational & Psychological Consultation, 2016. 26(4): p. 413-430.
- Ialongo, N., et al., Proximal impact of two first-grade preventive interventions on the early risk behaviors for later substance abuse, depression, and antisocial behavior. American Journal of Community Psychology, 1999. 27(5): p. 599-641.
- Storr, C.L., et al., A randomized controlled trial of two primary intervention strategies to prevent early onset tobacco smoking. Drug & Alcohol Dependence, 2002. 66(1): p. 51.
- Ialongo, N., et al., The distal impact of two first-grade preventive interventions on conduct problems and disorder in early adolescence. Journal of Emotional & Behavioral Disorders, 2001. 9(3): p. 146-160.
- Furr-Holden, C.D., et al., Developmentally inspired drug prevention: middle school outcomes in a school-based randomized prevention trial. Drug & Alcohol Dependence, 2004. 73(2): p. 149-58.

- Bradshaw, C.P., et al., Longitudinal Impact of Two Universal Preventive Interventions in First Grade on Educational Outcomes in High School. Journal of Educational Psychology, 2009. 101(4): p. 926-937.
- Hart, S.R., et al., Evaluating the Effects of Two Randomized Controlled Universal Preventive Interventions for Students in Special Education J. Hopkins, Editor. 2018.
- 28. Domitrovich, C.E., et al., How Do School-Based Prevention Programs Impact Teachers? Findings from a Randomized Trial of an Integrated Classroom Management and Social-Emotional Program. Prev Sci, 2016. 17(3): p. 325-37.
- Pas, E.T., et al., Identifying patterns of coaching to support the implementation of the Good Behavior Game: The role of teacher characteristics. School Mental Health, 2015. 7(1): p. 61-73.
- Domitrovich, C.E., et al., Individual and school organizational factors that influence implementation of the PAX Good Behavior Game intervention. Prevention Science, 2015. 16(8): p. 1064-1074.
- Becker, K.D., et al., Online training for teachers delivering evidence-based preventive interventions. School Mental Health, 2014. 6(4): p. 225-236.
- Becker, K.D., et al., Supporting universal prevention programs: A two-phased coaching model. Clinical Child and Family Psychology Review, 2013. 16(2): p. 213-28
- Becker, K.D., et al., Coaching teachers to improve implementation of the good behavior game. Administration and Policy in Mental Health and Mental Health Services Research, 2013: p. No Pagination Specified.
- 34 Domitrovich, C.E., et al., Integrated models of school-based prevention: Logic and theory. Psychology in the Schools, 2010. 47(1): p. 71-88.
- 35. Johnson, S.R., et al., Promoting teachers' implementation of classroom-based prevention programming through coaching: The mediating role of the coachteacher relationship. Administration and Policy in Mental Health and Mental Health Services Research, 2017: p. No Pagination Specified-No Pagination Specified.
- Smith, E.P., et al., Promoting Afterschool Quality and Positive Youth Development: Cluster Randomized Trial of the Pax Good Behavior Game. Prev Sci, 2018. 19(2): p. 159-173.
- Smith, E.P., et al., Promoting afterschool quality and positive youth development: Cluster randomized trial of the pax good behavior game. Prevention Science, 2017: p. No Pagination Specified-No Pagination Specified. Smith, E.P. and C.P. Bradshaw, *Promoting Nurturing Environments in Afterschool*
- Settings. Clin Child Fam Psychol Rev, 2017. 20(2): p. 117-126.
- Wise, E., E. Smith, and Y. Shobo, Connecting the Dots for Children in Afterschool Programs: Evaluation of the PAX
- Good Behavior Game in Afterschool Programs. January, 2014, The Pennsylvania State University: University Park, PA. p. 65.
- Fortier, J., et al., Adapting and enhancing PAX Good Behavior Game for First Nations communities: a mixed-methods study protocol developed with Swampy Cree Tribal Council communities in Manitoba. BMJ Open, 2018. 8(2): p. e018454.
- Jiang, D., et al., A Comparison of Variable- and Person-Oriented Approaches in Evaluating a Universal Preventive Intervention. Prev Sci, 2018.
- Pazderka, H., et al., Testing the PAX Good Behavior Game with and without schoolbased parenting support: study description and practical challenges. International Journal of Mental Health Promotion, 2017. 19(4): p. 173-188.
- Streimann, K., et al., Effectiveness of a universal classroom-based preventive intervention (PAX GBG): A research protocol for a matched-pair clusterrandomized controlled trial. Contemporary Clinical Trials Communications, 2017. 8(Supplement C): p. 75-84.
- O'Keeffe, J., et al., Protocol: A feasibility study and a pilot cluster randomised controlled trial of the PAX 'Good Behaviour Game' in disadvantaged schools. Using Randomised Controlled Trials in Education, 2017.
- Vazsonyi, A.T., L.M. Belliston, and D.J. Flannery, Evaluation of a School-Based, Universal Violence Prevention Program: Low-, Medium-, and High-Risk Children. Youth Violence and Juvenile Justice, 2004. 2(2): p. 185-206.
- Krug, E.G., et al., The impact of an elementary school-based violence prevention program on visits to the school nurse. American Journal of Preventive Medicine, 1997. **13**(6): p. 459-63.
- Embry, D.D., et al., PeaceBuilders: A theoretically driven, school-based model for early violence prevention. American Journal of Preventive Medicine, 1996. 12(5, Suppl): p. 91.
- Weis, R., K.J. Osborne, and E.L. Dean, Effectiveness of a universal, interdependent group contingency program on children's academic achievement: A countywide evaluation. Journal of Applied School Psychology, 2015. 31(3): p. 199-218.
- O'Donnell, M., et al., Supporting the development of pupils' self-regulation skills: Evaluation of the PAX GBG Programme in Ireland. Irish Teachers' Journal, 2016. 4 (1): p. 9-29.
- Embry, D.D., The Good Behavior Game: a best practice candidate as a universal behavioral vaccine. Clinical Child & Family Psychology Review, 2002. 5(4): p.
- Wilson, D.S., et al., Evolving the Future: Toward a Science of Intentional Change. Brain and Behavioral Sciences, 2014. 37(4): p. 395-416.