Longer Term Outcomes of Two Universal, First-Grade Preventive Intervention Trials

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Intervention Types:

- Universal
- Selected
- Indicated
- Treatment / Services
JHU PIRC Interventions
Integrate 4 Perspectives:

- Public Health
- Epidemiology
- Life Course Development
- Sociology
Preventive Intervention Trials Serve a Dual Purpose:

- Test for intervention efficacy / effectiveness
- Test developmental theory
Immediate objectives of the interventions:

- **Promote first graders’:**
  - Academic achievement
  - Self-esteem and psychological well-being

- **Reduce first graders’:**
  - Attention problems
  - Aggressive and shy behaviors
Long-term objectives of the interventions:

- **Promote:**
  - Educational, social, and occupational success

- **Prevent:**
  - Antisocial behavior
  - Substance abuse
  - Depression
Two first-grade interventions

- **Family-School Partnership (FSP) Intervention targeting:**
  - Parent-school communication
  - Parent “teaching” and discipline practices

- **Classroom-Centered (CC) Intervention targeting:**
  - Teacher classroom behavior management practices
  - Teacher instructional practices

- Both delivered over course of first-grade year
Family-School Partnership: Parent Components / Tools

- Parent workshops (led by teacher and school mental health professional) aimed at:
  - Establishing effective parent-school partnerships
  - Strategies to enhance their child’s learning
  - Effective ways to discipline their child

- Learning tools available to parents:
  - Parent lending library
  - A “Fun Math” kit
  - Voice mail system to communicate with teachers
Family-School Partnership: Teacher Components / Tools

- In-service training for teachers to assist them in:
  - Creating an environment that invites parent involvement
  - Communicating more appropriately with culturally diverse families
  - Identifying classroom factors and teaching practices that hinder or promote parent involvement
  - Planning and executing a successful parent-teacher conference
Classroom-Centered (CC) Intervention Components

- Curriculum to promote math and reading achievement - “Mastery Learning”

- Classroom behavioral components:
  - Good Behavior Game - to promote positive behavior using peer supports
  - Weekly class meeting – teachers guide students in a 6-step problem solving protocol to resolve conflicts and develop social competencies
Hypothesized Mechanisms: Antisocial Behavior & Substance Abuse

- Improved parent and teacher behavior management practices
- Reductions in early coercive / aggressive behavior
- Reduced likelihood of peer, teacher, and parent rejection
- Increased likelihood of acquiring “social survival skills”
- Less likely to drift into deviant peer groups
Hypothesized Mechanisms: Anxious / Depressive Symptoms

- Improved teacher and parent instructional practices provide support for learning
- Improved achievement
- Improved perceptions of competence and control
- Improved psychological well-being
Design

- Effectiveness trial – existing teachers and school mental health professionals delivered interventions
- Completely randomized block design:
  - 3 first grade classrooms in 9 urban elementary schools (primarily African-American)
  - Randomly assigned to an intervention or a standard setting classroom
  - Children and teachers randomly assigned to classrooms within each school
Assessment design and methods

- Pretest assessment early fall of first grade
  - Teacher, school mental health professional, parent, peer, and youth reports
- Post-test late spring of first grade
- Annual follow-up each spring since 1st grade
Constructs assessed:

- **Proximal targets:**
  - Grades, standardized achievement scores, attendance, special education, disciplinary removals
  - Attention / concentration problems
  - Aggression
  - Shy / withdrawn behaviors

- **Distal targets:**
  - Conduct, affective, anxious, substance abuse symptoms and disorders
  - Grades, standardized achievement scores, attendance, special education, disciplinary removals
Proximal Impact Grades 1-2

- Improved reading and math achievement
- Decreased teacher-rated total problem behaviors
- Decreased peer-nominated aggression
- Decreased parent-rated total problem behaviors
- Increased psychological well-being
Highlights of Intervention Impact:
End of 6th Grade
Classroom Centered vs. Control (6th grade boys)

Odds Ratio: 0.42, 95% CI (0.18-0.98)

Probability of Event

Conduct Disorder

Control
Classroom Centered
Classroom Centered vs. Control (6th grade)

Odds Ratio: 0.73, 95% CI (0.56-0.95)
Classroom Centered vs. Control (6th grade)

Odds Ratio: 0.53, 95% CI (0.38-0.76)

Parent Report: Child Receive Mental Health Service

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Classroom Centered vs. Control (6th grade)

Odds Ratio: 0.56, 95% CI (0.32-0.99)

School Mental Health Professional Report: Child Receive Mental Health Service

- Control
- Classroom Centered
Classroom Centered vs. Control (6th grade)

Odds Ratio: 0.37, 95% CI (0.20-0.70)
Family – School Partnership vs. Control (6th grade)

Odds Ratio: 0.69, 95% CI (0.32-1.49)
Family – School Partnership vs. Control (6th grade)

Odds Ratio: 0.59, 95% CI (0.35-0.97)

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Family – School Partnership vs. Control (6th grade)

Odds Ratio: 0.66, 95% CI (0.32-0.1.32)

Parent Report: Child Receive Mental Health Service

- **Control**
- **Family-School Partnership**
Family – School Partnership vs. Control (6^{th} grade)

Odds Ratio: 0.66, 95% CI (0.32-1.33)
Family – School Partnership vs. Control (6th grade)

Odds Ratio: 0.72, 95% CI (0.47-1.11)
Kaplan-Meier Estimates of Impact of Interventions on Youth Tobacco Smoking

Intervention Status
- Control
- Classroom Centered
- Family-School Partnership

AGE

Percent Starting Tobacco Use

Highlights of Intervention Impact: 11th Grade
Classroom Centered vs. Control (11th grade)

Odds Ratio: 0.30, 95% CI (0.12-0.78)

Experimentation with Illicit/Hard Drugs

Probability of Event

Control
Classroom Centered
Classroom Centered vs. Control (11th grade boys only)

Odds Ratio: 0.48, 95% CI (0.20-1.17), p < .10

Conduct Disorder: Youth Report (boys)
Classroom Centered vs. Control (11th grade)

Odds Ratio: 0.40, 95% CI (0.23 - 0.70)

Probability of Event

School Suspension in Last Year

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Classroom Centered vs. Control
(11\textsuperscript{th} grade)

Odds Ratio: 0.39, 95\% CI (0.20-0.74)

Teacher Report: Youth Received Counseling for Behavior Problems

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Classroom Centered vs. Control (11th grade)

Odds Ratio: 0.47, 95% CI (0.24-0.93)

Probability of Event

Received Special Education

Control
Classroom Centered
Classroom Centered vs. Control (11th grade)

Teacher Report: Youth Needs Special Education

Odds Ratio: 0.57, 95% CI (0.34-0.96)

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Preliminary Conclusions

- Evidence of distal impacts of first-grade universal interventions (10 years later)
- Effects for school and externalizing outcomes but not internalizing outcomes
- Effects of CC interventions stronger and longer lasting than FSP effects
  - CC = Teachers received 60 hours training / supervision
  - FSP = Parents received nine 90-minute sessions; children well-behaved
- Impact seems to be greatest for youth at moderate risk
Future Directions for Understanding Distal Impact

- Moderator analyses – for whom, to what degree, for how long and in what contexts are interventions most effective
- Mediational analyses to examine hypothesized mechanisms
- Use of growth modeling methods to examine change in trajectories over time
  - Growth mixture methods to examine differential intervention effects for different trajectories
Future Directions for Prevention Trials

- Combinations of CC and FSP interventions may lead to additive if not synergistic effects
- Integration of selected and indicated interventions within universals
- Visit [http://www.bpp.jhu.edu](http://www.bpp.jhu.edu) for slides and more information regarding new PIRC trials