Preventing Multiple Risk Behaviors through Social Skill Development in Elementary Schools

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[1]Madonna University [2]Ball State University

Thank you!

58 Participating Schools, 300+Teachers and 2,900+ Students

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Poor Social Skills

"Children with poor social skills can be viewed as more vulnerable to developing low self-esteem and at risk of failing to reach their potential as such difficulties can limit educational and career opportunities as well as affect relationships and physical and mental well-being."

Flouri, E., Buchanan, A., & Bream, V. (2000). In and out of emotional and behavioural problems. In A. Buchanan & B. Hudson (Eds.), Promoting children's emotional well-being. (pp 48–68). Oxford: Oxford University Press.

Health Risk Behaviors

Behaviors that contribute to:

- unintentional injuries and violence;
- tobacco use;
- alcohol and other drug use;
- unhealthy dietary behaviors; and physical inactivity.

Risks for Academic Failure

- Poverty
- Divorce
- Single Parent Family
- Parental Mental Illness
- Chronic Physical Illness
- Developmental Delays
- Mental, emotional, and behavioral disorders

(R. BLUM 1997)

Mental, Emotional and Behavioral Disorders

- **20% of US pop. ≤ 25 yrs affected at any given time** (U.S. Dept. of Health and Human Services, 1999)
- **50% are diagnosable by age 14** (Kessler et al., 2005)
- **Initial symptoms can precede the full-blown disorder by as many as four years** (Costello et al., 2005)
- **Millions more affected by health risk behaviors (e.g., drug abuse) or psychosocial problems (e.g., bullying)** (Center for Disease Control and Prevention, 2007; Taras et al., 2004)

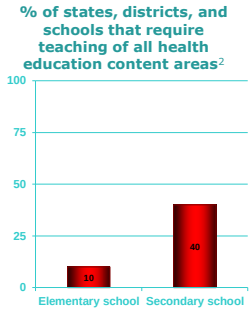
Problem

Health problems and risk behaviors impede motivation and the ability to learn, which diminishes the educational mission of schools[1]

[1] Basch, C.E. (2010). *Healthier Students Are Better Learners: A Missing Link in Efforts to Close the Achievement Gap.* Teachers College, Columbia University.

Problem

Comprehensive health education continues to struggle to find a place in the curriculum alongside other content areas



[2] Kann L, Telljohann SK, Wooley SF. Health education: Results from the school health policies and programs study 2006. *J Sch Health*. 2007;77(8):408-434.

Problem

School-based health education programs have been shown to improve student health and well-being in many individual areas.

However:

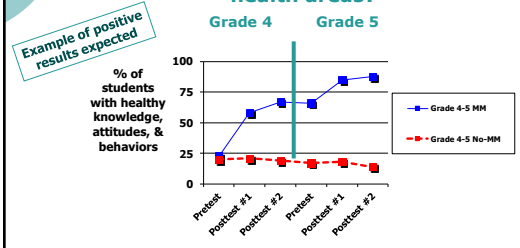
- many studies lack a rigorous design, and
- virtually none have focused on the unique benefits of comprehensive health education**:**

Purpose

Determine the extent to which a comprehensive health education program previously found effective in addressing specific health needs of students can simultaneously impact multiple health areas

Research Question

Does participation in the *Michigan Model for Health* over two grade levels cause an increase in students' health knowledge, skills, attitudes & behaviors across multiple health areas?



Program

The *Michigan Model for Health* ® is:

- comprehensive (K-12, multiple health content areas)
- theory-driven (Health Belief Model, Social Learning Theory)
- focused on skill development
- contemporary (revisions since 2004)
- classroom-administered (in 20- to 50-minute sessions)

The model for healthy kids!
MM
Michigan Model for Health

http://www.emc.cmich.edu/mm/

This study focused on:

- **Grade 4:** 25 lessons on social and emotional health; alcohol, tobacco, and other drugs; safety; and nutrition and physical activity
- **Grade 5**: 28 more lessons on same topics

Research Design

- Experimental: School buildings randomly assigned to program or control group
- Longitudinal: Grade 4 and 5; pretest and multiple posttests
- Efficacy Study: Comprehensive evaluation of health education curriculum implemented with fidelity by trained teachers:
  - Social and Emotional Health
  - Safety/Violence
  - Alcohol and Other Drugs (tobacco, inhalants)
  - Nutrition and Physical activity
  - Not included: Gr. 5 Personal Health and Wellness; Gr. 4 and 5 HIV Prevention

Research Design

	Grade 4 (2006/2007)				Grade 5 (2007/2008)			
R	O	X	O	O	O	X	O	O
R	O		O	O	O		O	O

R = Schools randomly assigned to experimental and control groups
O = Student self-report survey
X = *Michigan Model for Health*® curriculum

Incentives for Participating Buildings, Teachers, and Students (each year)

- Free MM manuals/materials to all participating teachers (both MM and control groups)
- Free MM curriculum training, including travel, lodging (as needed), and stipends/substitute costs for all participating teachers
- $200 for each participating building
- $200 for program group teachers and $100 for control group teachers to complete implementation logs (online)
- $60 to classrooms for collecting parental consent forms
- Confidential: Building identity and student data not disclosed

Exclusion Criteria

A. Less than 30 students in fourth and fifth grade;
B. Implemented the MMH or any other health education curriculum in the year preceding the study;
C. Implemented a Coordinated School Health Program in the year preceding the study or planned to do so during the study;
D. Not willing to delay implementation of any health education curriculum during the study if randomly assigned to the control condition; or
E. Building expected/planned to close/merge during the study.

Sample

- n = 2,512 students (*M* = 9.6 yrs; *SD* = .67)
  - 46% female
  - 54% White; 38% African-American
- n = 52 school buildings (39 from MI; 13 from IN)
  - 356: Median enrollment (range: 132 - 836)
  - 40%: Median % eligible for free/reduced lunch program (NSLP) (range: 11.1% -97.9%)
- n = 321 teachers

Missing Data

- Students with no data in Grade 4 (n = 387) or
- Grade 5 (n = 919) were not included in the sample, because:
  - They (presumably) received only one year of the intervention, and
  - There was too much missing data to estimate (entire year and 1/2 of all times of measurement [TOM])
- In statistical analyses, missing outcome data were accounted for by using a mixed-model approach
- Estimated missing data for no more than two TOM and not more than one TOM per grade

Attrition Effects

Tested for differences ($p < .05$) in demographics and outcome variables between students present for all times of measurement ($n = 749$) and those tested in the first year only ($n = 919$):

- No attrition x treatment effect (i.e., baseline equivalence between experimental & control groups)
- No attrition x age effect
- No attrition x gender or ethnicity effect, but both groups had higher attrition among:
  - Males (59% vs 51% for females)
  - African-American and "Other" Ethnic groups (64% and 57% respectively, vs 51% for White students)

More Attrition Effects

"Attrition" students in both the experimental and control groups also exhibited:

- Higher levels of lifetime and recent use of alcohol and tobacco
- Lower social-emotional skills, interpersonal communication skills, self-management skills, and drug refusal skills
- Greater intentions to use tobacco and alcohol within the next 12 months and higher levels of recent aggression
- No differences in levels of prosocial behavior

Instruments

- Student self-report survey (65 items, pilot-tested) measuring knowledge, skills, attitudes, and behaviors in four content areas:
  - Social/Emotional health
  - Safety/Violence
  - Alcohol and other drugs (tobacco, inhalants)
  - Nutrition/Physical activity
- Teacher self-report survey assessing
  - Implementation fidelity
  - Teaching experience (overall & in health education)
  - Attitudes toward health education

Health Constructs and Measures

Mental Health Promotion
- **Social and Emotional Skills** (CCSSO, 2004) ($\alpha = .74$)
- **Interpersonal Communication Skills** (CCSSO, 2004) ($\alpha = .73$)
- **Self-Management Skills** (CCSSO, 2004) ($\alpha = .63$)

Violence Prevention
- **Aggressive Behavior** (YRBS; CDC 2000) ($\alpha = .70$)
- **Prosocial Behavior** (Bosworth and Espelage, 1995) ($\alpha = .79$)

Drug Abuse Prevention
- **Drug Refusal Skills** (CCSSO, 2004) ($\alpha = .59$)
- **Drug Use Intentions** (Hansen & McNeal, 1997) ($\alpha = .71$)
- **Past-30-Day Alcohol & Tobacco Use** (YRBS, 2000) ($r = .47, .28$)
- **Lifetime Alcohol and Tobacco Use** (YRBS, 2000) ($r = .45, .35$)

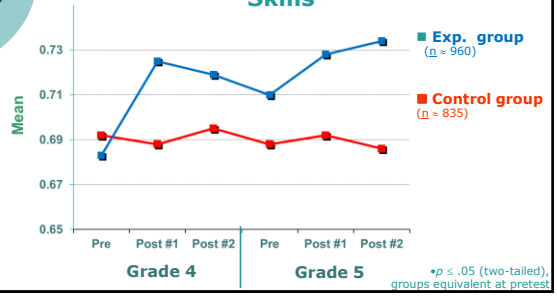
α = Cronbach's alpha internal consistency reliability of multi-item scale
r = 12-week, test-retest correlation for single item among control school students

Data Analysis

- Descriptive
  - Frequencies
  - Means
- Inferential
  - Mixed model (for continuous DVs)
  - Binary Logistic Regression (for drug use behavior as DVs)

Results

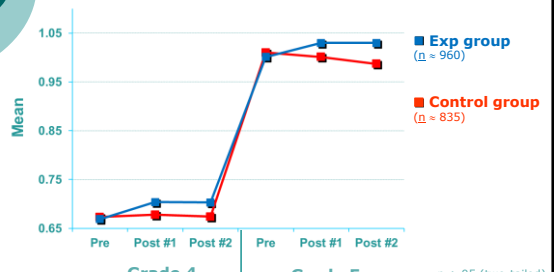
Improved Interpersonal Communication Skills*



*$p \leq .05$ (two-tailed), groups equivalent at pretest

Results

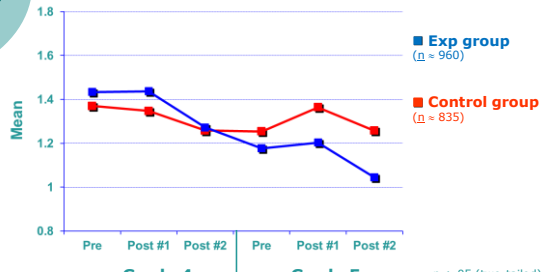
Better Social and Emotional Skills*



•$p \leq .05$ (two-tailed), groups equivalent at pretest

Results

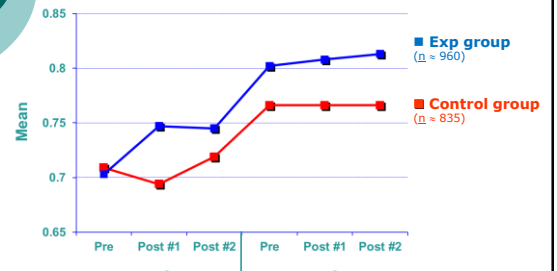
Less Aggressive Behavior*



•$p \leq .05$ (two-tailed), groups equivalent at pretest

Results

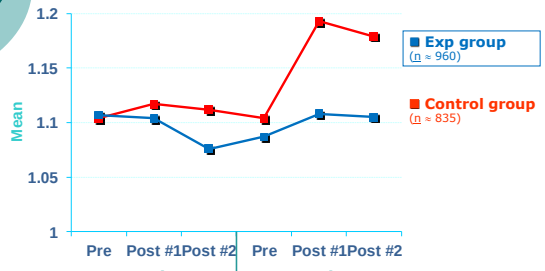
Enhanced Drug Refusal Skills*



•$p \leq .05$ (two-tailed), groups equivalent at pretest

Results

Lower Drug Use Intentions*

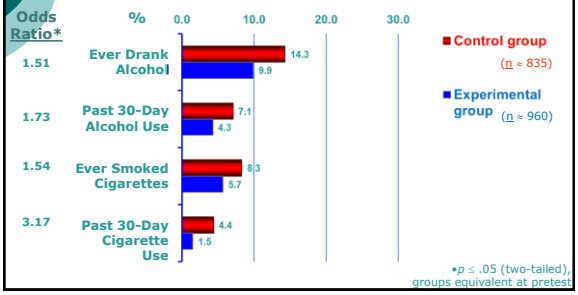


•$p \leq .05$ (two-tailed), groups equivalent at pretest

Results

Lower Prevalence of Alcohol and Tobacco Use*

(Grade 5 Follow-Up Posttest)



•$p \leq .05$ (two-tailed), groups equivalent at pretest

More Results...

Both the *Michigan Model for Health®* participants and control-group students improved over a two-year period in:

- Self-management skills
- Pro-social behavior

•$p \leq .05$ (two-tailed), groups equivalent at pretest

Conclusion

- Evidence of an intervention effect across multiple health areas for students in Grade 4 who were evaluated longitudinally through Grade 5.
- Compared to control-group counterparts, students in the intervention schools exhibited:
  - better social and emotional skills, interpersonal skills and drug refusal skills
  - lower levels of aggression and drug use intentions and behavior
- Use of an experimental design and demonstration of baseline equivalence supports a conclusion of a causal effect between the intervention and observed outcomes

Limitations

- Durability of effects unknown beyond two years
- Effects on higher-risk students unknown due to attrition patterns
- Impact on additional health areas (e.g.,nutrition, physical activity, safety, HIV, personal health and wellness)

Implications for Schools

- Evidence supports recommendations from many health and education experts to establish comprehensive approaches to prevention and health promotion
- Comprehensive health education has unique benefits for effective adoption, implementation, and sustainability:
  - Aligns with Coordinated School Health Program approach
  - Positive effects can be used to demonstrate accountability in meeting national and state health education standards
  - Decreases burden of training and resource allocation that accompany the use of several distinct programs that each target a different health topic or risk behavior.