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BAM—SPORTS EDITION¹

UNIVERSITY OF CHICAGO CRIME LAB
RESEARCH AND POLICY BRIEF
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ABSTRACT

While non-academic or “social-cognitive” skills are important predictors of student outcomes, schools (particularly secondary schools) devote little explicit attention to such skills after the first few grades – perhaps partly because of uncertainty about whether these types of skills are actually amenable to policy intervention. A randomized field experiment in the Chicago Public Schools assigned 2,740 disadvantaged males in grades 7-10 to one year of social-cognitive skill development through in-school and after-school programming, or to a control group. Participation increased schooling outcomes by 0.14 standard deviations during the program year and 0.19 standard deviations in the subsequent year, effects which may translate to a 10 to 23 percent increase in graduation rates relative to the control group once the youth are old enough to graduate. The intervention also reduced violent-crime arrests during the program year by 8.1 per 100 youth, or 44 percent. Student surveys provide suggestive evidence that social-cognitive skills mediate these impacts. Dollar-valued benefits to society range from 3 to 31 times the \$1,100 per-participant program cost.

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BACKGROUND

Improving the life outcomes of disadvantaged youth is a top policy priority in the United States. The average high school graduation rate in our 50 largest urban school districts is just 53 percent (Swanson, 2009). Over the past 40 years, high school graduation rates in the U.S. have barely changed, with little convergence in the black-white gap (Heckman & LaFontaine, 2010). Nearly 70 percent of black male dropouts spend time in prison by their mid-30s (Western & Pettit, 2010).

Why have we not made more progress in improving the long-term life chances of disadvantaged youth? One candidate answer is that while the U.S. devotes considerable resources to developing academic skills – total annual spending on K-12 public schooling equals \$550 billion (U.S. Census Bureau, 2010) – we devote relatively little attention, at least outside the earliest elementary-school grades, to addressing other important determinants of student success such as what Dodge et al. (1986) call “social-cognitive skills.” Examples include self-control, conflict resolution, future orientation, and social information processing, such as the ability to accurately infer the intentions of others (see also Dodge, 2011).

A growing body of research demonstrates that social-cognitive skills predict success in school and the labor market, as well as improved health and reduced criminal involvement. Because they are learned through experience, children growing up in disadvantaged circumstances are at elevated risk of developing deficits in social-cognitive skills.

This brief reports the results of a large-scale randomized controlled trial of a one-year program designed to remediate social-cognitive skill deficits among low-income adolescent male students.

BAM—SPORTS EDITION

In March 2009, the University of Chicago Crime Lab launched the *Chicago Initiative to Reduce Gun Violence among School-Age Youth*, a project to address the sobering reality that homicide claims more lives of black males aged 15-24 in the United States than the next nine causes of death *combined*. This initiative included a design competition to identify promising ideas to reduce youth gun violence. Thirty proposals were submitted by local social service agencies, government agencies, and nonprofit organizations. The winning entry, *Becoming A Man—Sports Edition* (BAM-Sports Edition), was proposed by two collaborating organizations: Youth Guidance (YG) and World Sport Chicago (WSC).

Between March and September 2009, the Crime Lab, YG, and WSC raised approximately \$1 million to develop and field the intervention. Major funders included the University of Chicago Provost’s Office, the School of Social Service Administration, the Center for Health Administration Studies, and the National Institute of Child Health and Human Development, along with philanthropic support from the Exelon, Joyce, MacArthur, McCormick, Polk Bros., and Spencer Foundations, and the Chicago Community Trust. Chicago Public Schools (CPS) and the Circuit Court of Cook County, Juvenile Justice Division, provided administrative data to identify and recruit students.

BAM-Sports Edition is designed to address the difficult everyday circumstances facing many low-income, minority male youth in Chicago. The intervention focuses on developing skills

related to emotional regulation, control of stress response, improved social-information processing, interpersonal problem solving, goal setting and attainment, and personal integrity. Another goal of this intervention is to impart a realistic, socially responsible view of adult masculinity to youth whose social environments often promote competing, more aggressive norms. The program is based on cognitive behavioral therapy principles – a variety of techniques that help individuals “identify, monitor, challenge, and change their thoughts and behavior” (Walker & Bright, 2009) – which have been proven effective in the treatment of depression, anxiety, substance abuse, and medication adherence.

During the 2009-2010 school year, YG and WSC implemented the intervention within CPS. Youth were offered a mix of in-school and after-school programming to develop social-cognitive skills. The in-school program offered youth the chance to participate in up to 27 one-hour small-group sessions (about 15 youth were assigned to each group, with 8.58 attendees per session on average). Sessions met once per week during the school day over eight months of the school year. Each session, built around an explicitly articulated lesson, was designed to develop a specific skill and included an out-of-class homework assignment to practice and apply that skill.

WSC’s after-school sports activities were designed to reinforce conflict resolution skills and the social and emotional learning objectives of YG’s BAM curriculum, as well as to increase program attendance. Sports varied by school and included wrestling, martial arts, archery, weight-lifting, boxing, and handball. This programming was provided by coaches trained in the overall goals of BAM and in social-emotional learning principles more generally.

BAM-Sports Edition was evaluated in 18 schools: Austin Polytech (High School (“HS”)); Banneker (Elementary School (“ES”)); Bass (ES); Clemente (HS and Achievement Academy (“AA”)); Crane (HS and AA); Douglass (HS); Fenger (HS and AA); Harper (HS); Jordan (ES); Juarez (HS); Orr (HS); Parker (ES); Robeson (HS and AA); and Yale (ES). Each school serves a low-income community facing economic and social challenges, including youth violence.

Using student-level CPS data for the 2008-2009 school year (i.e. the “pre-program year”), we identified a total of 2,740 eligible male youth in grades 7-10 attending 18 CPS elementary and high schools. Given large gender disparities in rates of violence involvement, eligibility was restricted to male youth. Our focus was on students of “medium risk” within their local school environments – those whose prior school records were consistent with the presence of social-cognitive skill deficits, but who were still likely to attend school often enough to benefit from a school-based intervention. Within each school, we randomly assigned students to treatment (in-school only, after-school only, or both) and control conditions from this master list.

As shown below, BAM-Sports Edition served youth who faced significant challenges. The average program youth missed six weeks of school during the pre-program year, with a mean grade-point average of a D plus. The last row shows that the distributions of these baseline characteristics are similar across groups, suggesting that assignment to treatment status was indeed random.

Table 1. Descriptive Statistics for Study Sample: Baseline 2008-09 School Year

	Treatment (n=1473)	Control (n=1267)
Grade	9.29	9.42
Age	15.51	15.70
Old for Grade	0.51	0.55
Total Days Present	133	130
Ever Arrested	0.35	0.37
Black	0.69	0.72
Hispanic	0.31	0.28
GPA	1.73	1.68
Joint significance test, all baseline variables: F=1.05, p=0.397		

Note: None of the differences across groups in any of the variables shown is statistically significant.

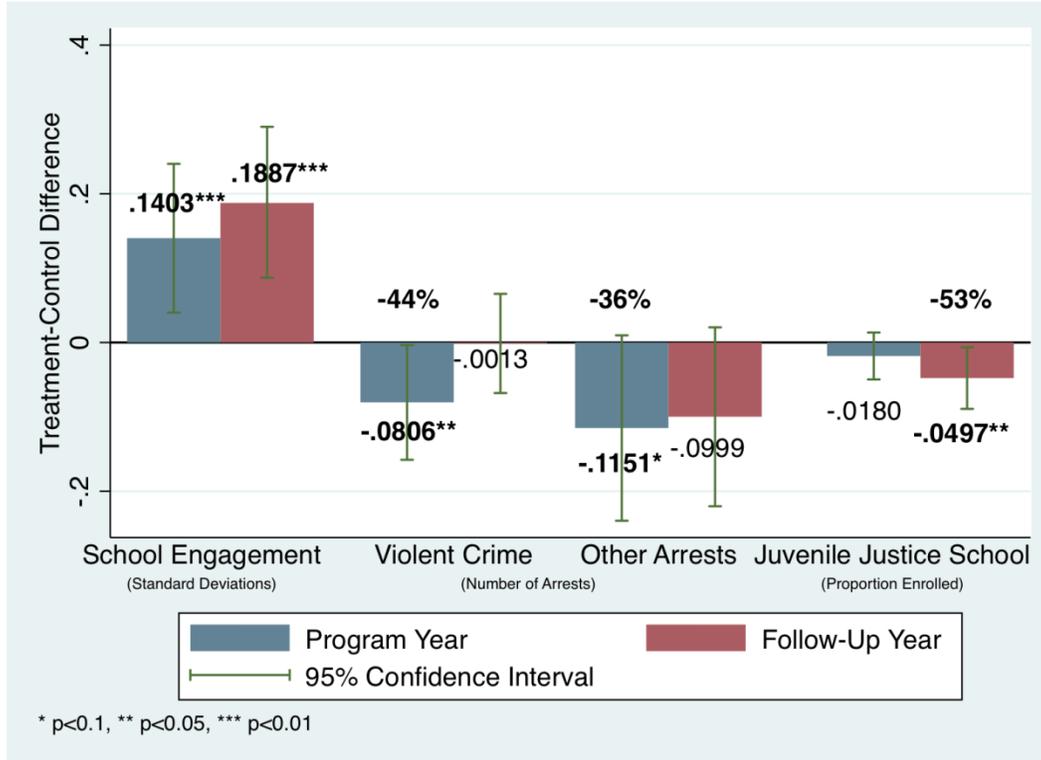
STUDY FINDINGS

About half of the students assigned to one of the treatment groups actually participated in the program, consistent with participation levels seen in previous large-scale social experiments. On average, participating youth attended about 13 program sessions, with substantial variation across schools. YG and WSC successfully implemented a challenging intervention at scale—in 18 public schools serving some of Chicago’s lowest-income communities—under a tight timeline and budget.

To measure the impact of the intervention, we used student-level administrative records obtained from CPS as well as juvenile and adult justice system arrest records maintained by the Illinois State Police. For statistical reasons, we formed a composite measure from available CPS data to capture engagement with and performance in school, equal to an average (in standard deviation units) of number of days present, grade point average, and school persistence (end-of-year enrollment status). To measure changes in criminal behavior, the Illinois Criminal Justice Information Authority used probabilistic matching to provide us with Illinois arrest histories on study youth. We classify these arrests as violent, property, drug, or other offenses. Note that we are still collecting data on the study youth that will help to refine and extend these results.

Our findings show that program participation **significantly increased school engagement and performance** by 0.14 standard deviations during the program year and by 0.19 standard deviations in the follow-up year, impacts that imply future graduation rate increases of about 10 to 23 percent of the control group’s graduation rate. Program participation also **reduced violent crime arrests by 44 percent** (8 fewer arrests per 100 participants) and arrests in the ‘other’ (miscellaneous) category, which includes vandalism and weapons crime, by 36 percent (11.5 fewer arrests per 100 participants) during the program year. These findings are particularly noteworthy given the challenging settings in which the intervention took place. (In fact, our study is closer to what evaluation researchers would call an effectiveness trial of how a program would operate at scale than it is to the sort of smaller-scale efficacy trials carried out under ideal conditions by program developers and researchers.) The positive program effects provide the most rigorous, large-scale evidence to date that a social-cognitive skill intervention can improve both schooling and delinquency outcomes for disadvantaged youth.

FIGURE 1. INTERVENTION EFFECTS



Notes on Figure 1: The bars show the estimated impact of program participation for the year of the program (school year 2009-2010 for schooling outcomes, September 2009 – August 2010 for arrest outcomes) and the following year (school year 2010-2011 for schooling outcomes, September 2010 – July 2011 for arrest outcomes). The whiskers delineate 95 percent confidence intervals.

Although violent crime impacts are no longer statistically significant in the post-program year, by reducing arrest rates during the program year, the intervention appears to reduce youths’ likelihood of future detention in a juvenile justice facility. This effect may arise because prior arrest records influence criminal justice authorities’ decisions about whether to detain or release specific youth in response to new arrests. The right-hand side of Figure 1 shows that in the year after the program, participants experienced a 5 percentage point (53 percent) reduction in the likelihood of enrolling in a school within a juvenile justice setting compared to their control group counterparts.

The CPS records we analyzed also include student responses to surveys conducted by the Consortium on Chicago School Research (CCSR), which provide suggestive evidence that improved social-cognitive skills might at least in part explain the behavioral impacts.²

² We found positive but not statistically significant effects as a result of program participation related to perseverance (“grit”) and emotional health (items related to conflict resolution and peer relationships). Unfortunately, the CCSR survey response rates on these measures are not ideal – around 40 percent for the study sample overall, and about 4 percentage points higher for treatment than control students. To examine whether these findings might be artifacts of low response rates, we examined treatment-control differences on survey items

BENEFIT-COST ANALYSIS

Are these program impacts large or small? One way to make this judgment is to compare the costs of the intervention (around \$1,100 per participant) with the value to society from the accumulated program impacts – that is, benefit-cost analysis. Our sample was too young to have graduated by the end of our study period. We can, however, forecast implied graduation impacts based on the link between graduation and measures of earlier schooling engagement found in previous longitudinal studies of CPS students. Observed impacts on our school engagement index imply high school graduation impacts that might be as high as 5 to 9.5 percentage points (10 to 23 percent). If these graduation impacts are realized, the resulting social benefits would be on the order of \$49,000 to \$119,000 per participant from increased lifetime earnings, tax payments, and lower public benefit use.

Table 2: Estimated Social Benefits Per Participant

	Low Estimate	High Estimate
	From Realized Crime Reduction	
Savings to Victims	\$2,530	\$32,045
Savings to Government	\$1,076	\$1,217
Subtotal	\$3,606	\$34,479
	From Potential Increase in High School Graduation	
Wage Increase to Participant	\$27,890	\$66,999
Savings to Government	\$21,555	\$51,782
Subtotal	\$49,445	\$118,781
Total	\$53,051	\$153,260

Notes: All estimates in 2010 dollars. Savings to victims are based on cost-of-crime estimates, which include tangible costs of crime (lost productivity, insurance and medical care, etc.) as well as quality of life costs. Government savings from reduced crime include costs of arrest, processing, detention, incarceration, and probation. Government savings from increase in graduation include increases in taxes paid and decreases in public health costs and welfare transfers.

While graduation impacts require forecasting given the age of the study youth, and therefore are subject to some uncertainty, the program impacts on criminal behavior during the program year itself generate benefits to society valued on the order of \$3,600 to \$34,000 per participant (depending on how we monetize the intangible costs of crime). This implies **benefit-cost ratios on the order of 3:1 to 31:1** from just reductions in crime during the program year.

POLICY AND PRACTICE IMPLICATIONS

These results are encouraging given how little is currently known about how to improve the life outcomes of disadvantaged adolescents. For example, the U.S Department of Education’s What Works Clearinghouse does not report a single intervention for school dropout prevention that earns their highest evidence rating. The Coalition for Evidence-Based Policy does not list a

unrelated to the intervention. We found no similar impacts on other survey outcomes, such as student reports about course clarity and academic “press.”

single program for addressing high school graduation among its “Top Tier” of programs. Similarly, the widely-acclaimed Blueprints for Violence Prevention has reviewed over 900 studies; the number of “model programs” they identify for reducing violent behavior among teens is just four, and three of these work with specialized populations of youth already deeply involved in the justice system.

While the results presented in this research brief are encouraging, the study does have limitations. Because of budget considerations, we were forced to rely on existing longitudinal administrative data to measure intervention impacts. The lack of original in-person data collection means that we have only limited information about how the program improved youth schooling outcomes and reduced violent behavior.

It is difficult to determine from our data why the intervention’s impacts persist for schooling engagement but not for violent behavior. Understanding more about program “fade-out” remains an open question for our application and for social policy generally.

Another limitation of our study, as with all randomized clinical trials, is that our results may not generalize to other samples and contexts. The program in principle lends itself to scale-up, as it is a manualized intervention, and given that estimated benefit-cost ratios range from 3:1 to 31:1. Since our study was carried out with large numbers of disadvantaged male youth from distressed areas of Chicago, with nearly 1,500 youth assigned to treatment, it is closer to an “effectiveness trial” (testing a program at scale) than an “efficacy trial” of a model (or “hothouse”) program. Nonetheless, replicating these results is an important priority for future research.

What is perhaps most remarkable about these findings, given the size of the gains in schooling outcomes (which could translate into increased graduation rates of 10 to 23 percent) and observed reductions in violent-crime arrests (44 percent), the relatively limited number of contact hours participants had in the program (about 13 sessions), and the low cost of the intervention (\$1,100 per participant), is the apparently considerable elasticity of youth outcomes to relatively modest efforts to remediate social-cognitive skill deficits. Given how little policy attention is currently devoted to improving social-cognitive skills of disadvantaged youth, there may be considerable returns to society from expanding investments in this area.