

SCIENCE

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Says: Early Childhood Programs

While most programs aimed at preventing teen pregnancy focus on adolescents, research suggests that children's experiences in programs many years earlier may also contribute to a reduced likelihood that they will become parents too soon. Indeed, studies indicate that early childhood and elementary school programs can contribute to reduced risk of adolescent pregnancy. This Science Says research brief highlights three such programs that were evaluated and found to be associated with lower risks of pregnancy in adolescence.

With funding from the U.S. Centers for Disease Control and Prevention (CDC), the National Campaign to Prevent Teen Pregnancy has joined with Child Trends to assess the effects of these early childhood programs on adolescent sexual behavior. The three programs described in this report have been carefully evaluated and have met several criteria. They have:

- *been completed in 1980 or later;*
- *been conducted in the United States or Canada;*
- *been targeted at preschool and elementary-school aged children;*
- *used an experimental or quasi-experimental design;^a*
- *had a sample size large enough (75 or more program and control group participants) to make comparisons between program and control groups; and*
- *measured effects on sexual behavior, pregnancy, and births.*

What Research Shows

Several research studies describe how early educational investments in children may influence their chance of getting pregnant during adolescence. These studies are not

program evaluations but longitudinal studies^b that:

- *link early, high-quality preschool education to higher educational achievement;*
- *show that school performance, attendance, and attitudes in early*

childhood can predict high school completion; and

- *indicate that positive educational performance and expectations can help reduce risky sexual behavior.*

^a Experimental designs randomly assign study participants to intervention and control groups and then compare the two groups. Experimental designs represent the only evaluation approach that can address questions of cause and effect definitively. Quasi-experimental designs do not randomly assign study participants to either group but do compare the intervention group with a comparison of youth with similar characteristics.

^b These longitudinal studies include analyses of secondary data that follow children and adolescents over time and allow researchers to examine how attitudes and behaviors at one time (e.g. in first grade) influence experiences years later (e.g. high school completion). These are in contrast to experimental and quasi-experimental evaluations of teens who participate in specific programs.

Early investments in children are associated with improved childhood development and academic achievement. Research suggests that early child care and high-quality preschool education programs are related to positive cognitive, emotional, and social development among preschoolers, particularly among those from low-income families.¹ Children who participate in such programs score higher on cognitive tests, do better in kindergarten, are less likely to repeat a grade, and are more likely to complete high school.²

Early positive educational performance, attendance, and attitudes are predictive of high school completion. A longitudinal study of low-income first-graders in Baltimore, Maryland (that controlled for characteristics such as family socioeconomic status, family structure, mother's age at child's birth, and number of siblings) found that higher grades in first grade,³ and higher test scores and grades throughout elementary school,³ were associated with an increased likelihood of high school completion. Children who were rated by their teachers as having fewer behavioral problems (such as teasing and fighting) and greater levels of adaptability (such as enthusiasm and creativity) were less likely to drop out of high school than their peers.^{3,4} In addition, children who had to repeat first grade and those with more absences had an increased risk of dropping out of school years later.^{3,4} Even after controlling for factors such as family socioeconomic status, family structure, mother's age at child's birth, and number of siblings, other family characteristics were also associat-

ed with high school completion. Parents with high expectations for their first-graders' academic performance and educational attainment tended to have children who were more likely to complete school years later. Parental expectations were significant in models that controlled for family background, but were not in models that also included student performance and behavior, suggesting that parental expectations operate through teen performance and behavior.

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Positive educational performance and expectations can help reduce risky sexual behavior. Several research studies suggest that educational experiences in middle school and high school may influence adolescent behavior, including sexual risk taking. Academic performance, including higher grades and test scores, are associated with having sex at an older age;⁵ higher rates of contraceptive use;^{6,7} and a reduced risk of a nonmarital teen pregnancy or birth.^{8,9} In addition, those with higher educational expectations are less likely to become sexually active at an early age, and sexually active teens with higher educational expectations are less likely to have a child during adolescence.^{9,10} This may be due to "opportunity costs"—an explanation based on the premise that teens who have a

positive view of the future, including educational and career success for themselves, are more motivated to delay pregnancy. For the most part, youth development programs are based on this idea and, to that end, provide participants with skills in the areas of employment preparation, academic achievement, and healthy personal development which, in turn, can enhance their motivation to avoid too-early pregnancy and childbearing.

What Program Studies Show

Two experimentally evaluated early childhood interventions—The *Abecedarian Project* and *High/Scope Perry Preschool*—showed a positive impact years later on teen and nonmarital childbearing. A third program, *Seattle Social Development*—which used a quasi-experimental evaluation design—also found some promising results.

Abecedarian Project. This child-care program, based in North Carolina, operated between 1972 and 1977 and served high-risk children (based on index of parental income, education, IQ, aid receipt, family structure, and sibling educational level) nearly all of whom were African American. The goal of the project was to produce long-term benefits, such as improved academic performance, economic self-sufficiency, and social adjustment. The Project provided year-round, full-time (6–8 hours per day), weekday child-care with a preschool curriculum. Children participated for a maximum of eight years—from infancy through the first three years in elementary

school. Children were placed in either an early childhood intervention, a combination of early childhood and school-age interventions, or neither intervention (control group).

The early childhood intervention (early infancy and preschool years) included a child care curriculum where teachers tailored curricula and activities for each child, and children could choose their activities. The curriculum emphasized adult-child interaction and provided each child an opportunity to explore his or her classroom surroundings and environment (e.g. for infants to respond to visual and auditory stimuli). The school-age intervention (kindergarten to second grade) tried to get parents more actively involved in their children's learning. It encouraged parents to work at home with their children to supplement time spent in the classroom on reading and math. In addition, each teacher made an average of 15 visits to students' homes each year.

An experimental evaluation of the *Abecedarian Project* found that 21-year-olds who had participated in the early childhood program or both the early childhood and school-age programs were less likely than the control group to have become teen parents (26 percent versus 45 percent, respectively). In addition, among 21-year-olds who were parents, non-experimental analyses indicate that program participants were older when their first child was born than those in the control group (19.1 years old versus 17.7 years old, respectively).¹¹ The curricula used in the *Abecedarian Project* (Learningames) may be

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purchased from Mind Nurture (www.mindnurture.com) for approximately \$20. Training is also available.

High/Scope Perry Preschool Program. This early childhood intervention operated in Ypsilanti, Michigan, in the 1960s. It served low-income African American children aged three and four between 1962 and 1965, and followed participants into their thirties and forties.

The program was designed to improve participants' academic performance and educational attainment, for example, and reduce their involvement with crime. This two-year intervention provided classes every weekday morning, weekly home visits by teachers, and monthly group meetings with children's parents. The *High/Scope Perry Preschool Program* was based on the premise that providing young, low-income children with a positive learning environment could help offset some of the negative outcomes associated with living in poverty, such as school failure.

An experimental evaluation of the program found that at age 27, program participants were less likely to have had a birth outside of marriage compared with low income African-American children in the control group who did not participate in the program (57 percent versus 83 percent, respectively).¹² In addition, program participants were more likely to be married at age 27 compared with the control group (40 percent versus 8 percent, respectively).¹² Program materials are available through High Scope (<http://www.highscope.org>).

Seattle Social Development. This program was evaluated using a quasi-experimental design. While the results were encouraging, they cannot be considered definitive without a more rigorous experimental evaluation.

Seattle Social Development was a classroom-based youth development program designed to help children avoid risky behavior by increasing children's attachment to school and family. The program was designed

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for those who were first graders in 1981 and who continued in the program through grade six. The program had three components: teacher training, parent training,

and child social and emotional development. It provided opportunities for child and family involvement in the school and for enhanced social development among the children.

Seattle Social Development served students in eight public schools in Seattle, Washington. Slightly more than half (55 percent) of the students were eligible to receive free lunches at some point between fifth and seventh grade. Almost half of the students (47%) were white, 26% were African-American, 21% were Asian, and 7% were other race/ethnicities. Students participated in the program for at least one semester in first, second, third, or fourth grades, and at least one semester in fifth or sixth grades.

A quasi-experimental evaluation of *Seattle Social Development* found that those who had participated in the program each year between first and sixth grade (72 percent) were less likely than those in a comparison group who attended their regular elementary school program to have had sexual intercourse by age 18 (72 versus 83 percent respectively).¹³ At age 21, program participants were more likely than the comparison group members to report using a condom the most recent time they had sexual intercourse (60 percent versus 44 percent, respectively).¹⁴ In addition, 38 percent of the 21-year-old females in the program group reported having been pregnant, compared with 56 percent of their peers in the comparison group. Female participants also were less likely to report having given birth than those in the comparison group (23 percent versus 40 percent, respectively).¹⁴

Additional information about the program can be found at its website (<http://depts.washington.edu/ssdp>).

What It All Means

Better an hour too early than a minute too late. This research suggests that child care, preschool, and elementary school programs can help reduce rates of risky sexual behavior, adolescent pregnancy, and childbearing. There appears to be a connection between participating in

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these programs early in life, going on to perform better in school, and, ultimately having a more positive outlook for the future. Collectively, these factors seem to motivate teens to avoid too-early pregnancy and parenthood.

Beyond the usual suspects.

Although they may think of themselves as being at opposite ends of the childhood continuum, professionals working with young children and those working with teens may have more of a shared mission than they realize. Research suggests that even the earliest positive school-related experiences can contribute to educational attainment and less adolescent sexual behavior down the road. For that reason,

early childhood and teen pregnancy prevention leaders should look for opportunities to collaborate and support one another's efforts.

It's not always about sex. For those communities beset by disagreements over the best approach to preventing teen pregnancy, early childhood and elementary school interventions may offer a longer-term and less controversial approach. This is not to say that these programs should replace other more targeted efforts, such as sex education programs for older youth. Rather, they can be pitched as an early investment towards motivating children to do well in school throughout their youth and, as part of that goal, to avoid teen pregnancy and parenthood.

Using What Works. The evidence of a link between these three early childhood programs and improved academic success and delayed childbearing also points to the value of using programs with a proven track record. These three programs offered a structured learning environment for children that enhanced their cognitive, emotional, and social development. All such preschool programs should offer developmentally appropriate activities and parental education, and employ well-trained, educated staff.¹⁵

A Final Note. Although the evaluation findings from the programs in this report are encouraging, it is important to keep in mind that they were conducted only in research settings among relatively small groups of children. Consequently, it is not clear how they would work on a larger scale and to what extent their findings can be

generalized. More research is also needed specifically on the association between participating in early childhood programs and risky sexual behavior in adolescence. Unanswered questions include: how do these programs work with various groups of youth (racial/ethnic groups, gender, urban/rural settings, etc.)? How does the length of an intervention affect outcome? Which program elements have the greatest impact on teens' sexual behavior? How much does it cost to effectively operate an early intervention program? To help answer these questions, those who operate early childhood programs should consider building in long-term evaluations that include information on sexual behavior. Gathering answers to all these questions is a long-term but worthwhile goal, as we seek strategic ways to motivate youth to become self-sufficient, well-educated adults before becoming parents.

About Putting What Works to Work

Putting What Works to Work (PWWTW) is a project of the National Campaign to Prevent Teen Pregnancy funded, in part, by the Centers for Disease Control and Prevention. Through PWWTW, the Campaign is translating research on teen pregnancy prevention and related issues into user-friendly materials for practitioners, policymakers, and advocates. As part of this initiative, the Science Says series summarizes recent research in short, easy-to-understand briefs.

About the National Campaign

The National Campaign to Prevent Teen Pregnancy is a nonprofit, nonpartisan initiative supported largely by private donations. The Campaign's mission is to improve the well-being of children, youth, and families by reducing teen pregnancy. Our goal is to reduce the rate of teen pregnancy by one-third between 1996 and 2005.

About Child Trends

Child Trends is a nonprofit, nonpartisan research organization dedicated to improving the lives of children by conducting research and providing science-based information to improve the decisions, programs, and policies that affect children. Child Trends conducted the analysis used in this fact sheet.

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