

Teenage Sexual Abstinence and Academic Achievement

**Paper Presented at
The Ninth Annual
Abstinence Clearinghouse Conference
August, 2005**

**Robert Rector
Kirk A. Johnson Ph. D.
The Heritage Foundation
214 Massachusetts Ave. NE
Washington D.C. 2002
202 546 4400**

Introduction

There is strong and widespread support of teaching sexual abstinence to American teens. Over 90 percent of parents, at a minimum, want teens to be taught to abstain from sexual activity until they have at least finished high school. (Some 84 percent of parents favor teaching a stronger standard: abstinence until a couple is married or close to marriage.¹) Teens themselves also favor abstinence education: over 90 percent agree that teens should be taught to abstain from sex until they have at least finished high school.²

Teaching abstinence is not only very popular; it also makes sense. Social science data show that teens who abstain from sex do substantially better on a wide range of outcomes. For example, teens who abstain from sex are less likely to be depressed and to attempt suicide; to experience STDs; to have children out-of-wedlock; and to live in poverty and welfare dependence as adults.³ Finally, teens who delay sexual activity are more likely to have stable and enduring marriages as adults.⁴

This paper provides new findings on the positive effects of teen abstinence. It examines the linkages between teen sexual activity and academic performance using recently released data from the National Longitudinal Study of Adolescent Health (Add Health), a national survey funded by more than 17 federal agencies.

The Add Health data show that teens who abstain from sex during high school years are substantially less likely to be expelled from school; less likely to drop out of high school; and more likely to attend and graduate from college. When compared to sexually active teens, those who abstain from sexual activity during high school years (e.g., at least until age 18) are:

- 60 percent less likely to be expelled from school;
- 50 percent less likely to drop out of high school;
- almost twice as likely to graduate from college.

However, it might be possible that the differences in academic achievement between sexually active and abstinent teens are due to differences in social background factors such as parental education, gender, race, family structure, and family income. In this paper, regression analyses were used to check for this possibility; in this statistical procedure, abstaining teens were compared to sexually active teens with identical social

¹ Robert Rector, Melissa G. Pardue and Shannan Martin, "What Do Parents Want Taught in Sex Education Programs?" *The Heritage Foundation Backgrounder*, No. 1772, January 28, 2004.

² National Campaign to Prevent Teen Pregnancy, *Americans Sound Off About Teen Pregnancy*, December 2003, p. 8.

³ Denise Holfers, et al., "Adolescent Depression and Suicide Risk: Association with Sex and Drug Behavior," *American Journal of Preventive Medicine*, Volume 27, No. 3, 2004. Robert E. Rector, Kirk A. Johnson, Ph.D., Lauren R. Noyes, and Shannan Martin, *The Harmful Effects of Early Sexual Activity and Multiple Sexual Partners Among Women: A Book of Charts*, The Heritage Foundation, June 23, 2004.

⁴ Rector, Johnson, Noyes, and Martin, *op. cit.*, p. 10.

background characteristics. The inclusion of social background factors such as race, parental education, family income, and family structure had little impact on the findings. Even after inclusion of background factors, teen virginity was found to be a significant and independent predictor of academic success. Abstaining teens did dramatically better academically when compared to sexually active teens from identical socio-economic backgrounds.

The linkage between academic achievement and teen abstinence has two primary explanations. First, teens who abstain will be subject to less emotional turmoil and fewer psychological distractions; this will enable them to better focus on schoolwork. Second, abstinence and academic achievement are promoted by common underlying character traits. Teens who abstain are likely to have greater future orientation, greater impulse control, greater perseverance, greater resistance to peer pressure, and more respect for parental and societal values. These traits are likely to contribute to higher academic achievement.

In short, teen virgins are more likely to possess character traits that lead to success in life. Moreover, the practice of abstinence is likely to foster positive character traits that, in turn, will contribute to academic performance.

It might be argued that the academic differences between abstaining and sexually active teens were caused by unplanned births among sexually active teens. A childbirth by a teenage girl is very likely to lead to a premature end to education. However, teenage child-bearing does not seem to be the major factor leading to academic differences between abstaining and non-abstaining teens. Even when girls who gave birth before age 18 are excluded from the analysis, the differences in academic outcomes between abstinent and sexual active teens remain virtually unchanged.

It might be further argued that sexually active teens who use contraception will perform as well academically as those who remain virgins through high school. The data refute this notion. While sexually active teens who use contraception have somewhat better academic performance than active teens who do not contracept, the academic attainment of sexually active teens who use contraception remains substantially below the attainment of students who abstained from sex at least through high school.

In our society, greater educational attainment leads, on average, to higher lifetime incomes. Because they are more successful in school, teen virgins can expect to have, on average, incomes that will be 16 percent higher than sexually active teens from identical socio-economic backgrounds. This will mean an average increase of \$370,000 in income over a lifetime.

The Add Health Survey

The analysis presented in this paper is based on data from the National Longitudinal Survey of Adolescent Health (Add Health), a major survey of adolescent and young adult

behavior which is funded by more than 17 federal agencies.⁵ The Add Health survey is based on a nationally representative survey of roughly 14,000 youth. The survey is longitudinal, meaning that the same young people are followed over time and re-interviewed in subsequent years. The Add Health survey started with interviews of junior-high and high-school-aged students in 1994. These same students were asked a second wave of questions in 1995 and a third wave in 2001. By 2001, most of the youth in the survey were between the ages of 19 and 25. In each interview year, students were asked questions about their sexual behavior. The longitudinal nature of the Add Health survey data make it highly suitable for investigating the relationship between early sexual activity and subsequent academic achievement.

Finding: School Expulsion

The Add Health data show that teens who became sexually active before age 18 were almost three times more likely to be expelled from school than were teens who remained virgins while in high school. As Chart 1 shows, 9.9 percent of teens who had sexual intercourse before age 18 were expelled from school at least once. By contrast, the expulsion rate among teens who did not have intercourse was substantially lower: 3.5 percent.

Finding: High School Dropout Rates

The same pattern appears when high school dropout rates are examined. As Chart 2 shows, over 21 percent of teens who began sexual activity before age 18 dropped out of school before graduating from high school. The dropout rate of teens who remained virgins at least until age 18 was substantially lower at 8.6 percent. Overall, sexually active teens were two and a half times more likely to drop out of high school than were sexually abstinent teens.

Finding: College Attendance and Graduation

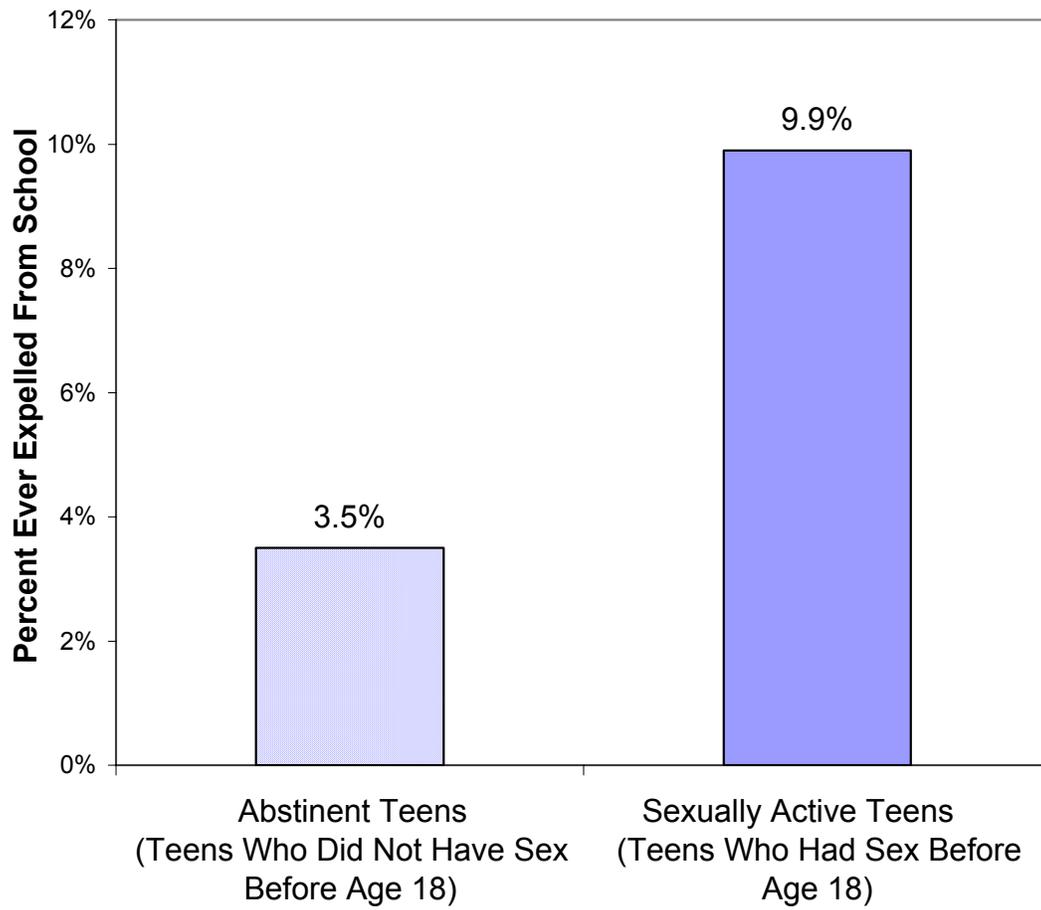
The Add Health data show that teens who remained virgins through high school were twice as likely to graduate from college as were sexually active teens. Some 15.8 percent of teens who remained virgins at least until age 18 had graduated from college by the final wave of the Add Health survey. By contrast, only 7.4 percent of teens who became sexually active before age 18 had graduated.

The relatively low overall rates of college graduation are a reflection of the young age of the Add Health sample. As noted, by the final wave of the survey in 2001, the youth

⁵This research uses data from Add Health, a program project designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris and funded by a grant P01-HD31921 from the National Institute of Child Health and Human Development, with cooperative funding from 17 other agencies. Persons interested in obtaining data files from Add Health should contact Add Health, Carolina Population Center, 123 West Franklin Street, Chapel Hill, NC 27516-2524 (addhealth@unc.edu).

Chart 1

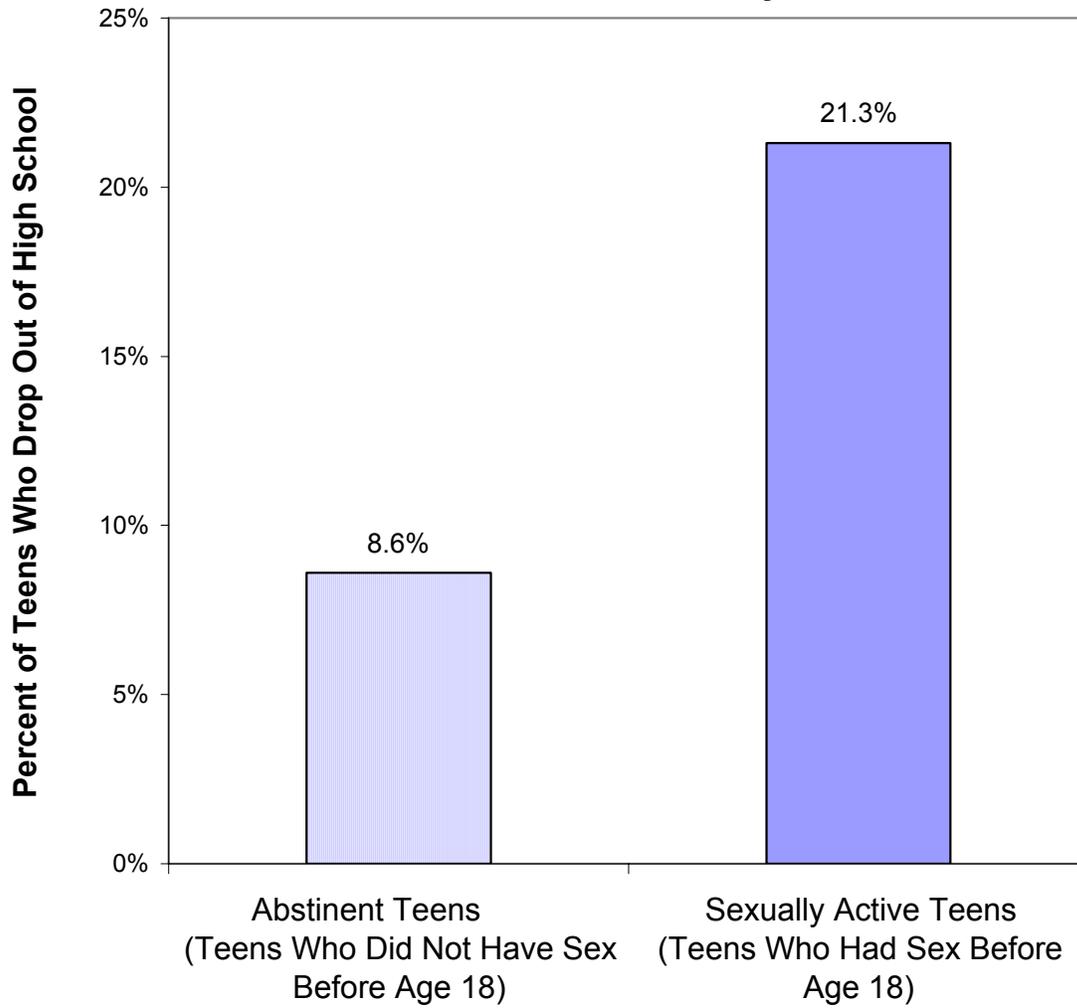
Teen Sex Activity and School Expulsion



Source: National Longitudinal Survey of Adolescent Health

Chart 2

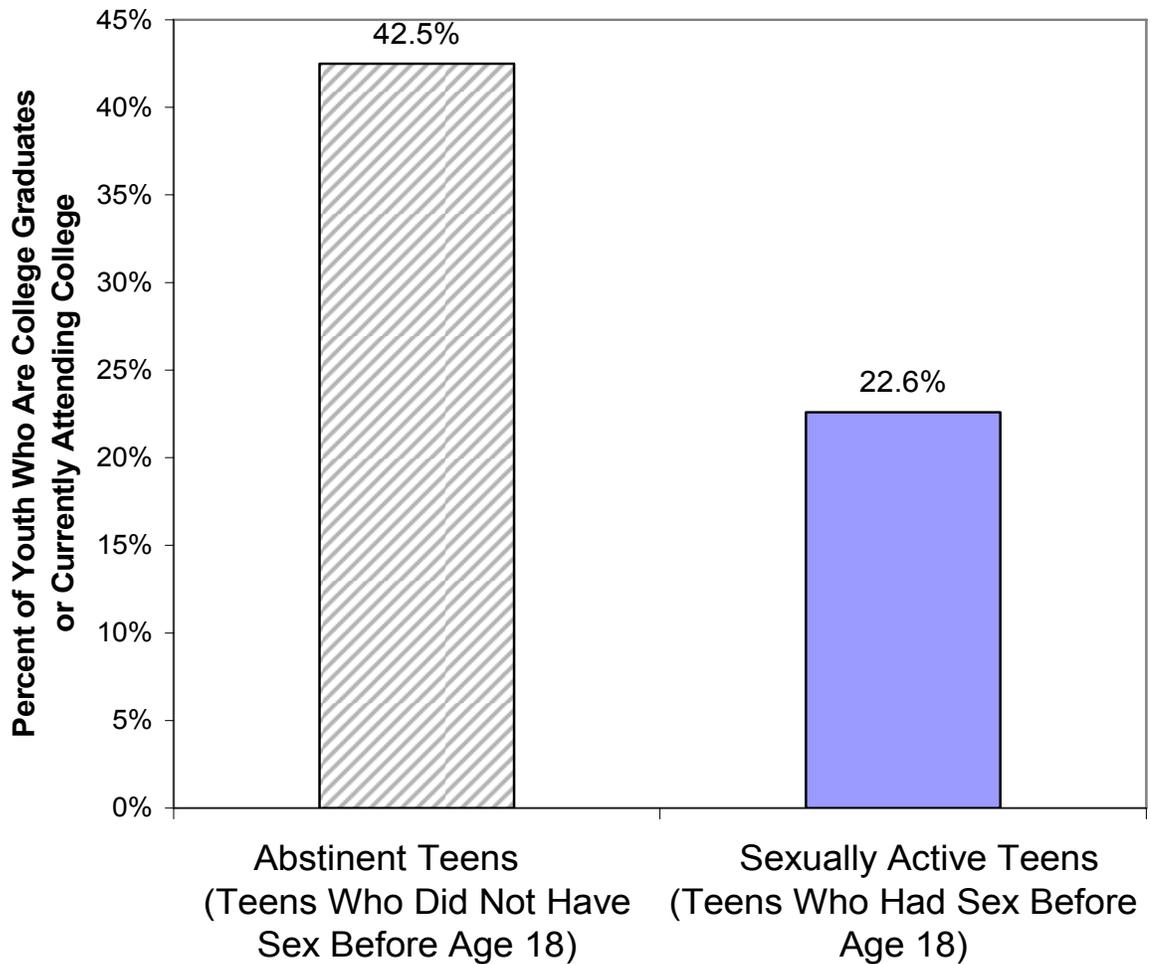
High School Dropout Rates and Teen Sex Activity



Source: National Longitudinal Survey of Adolescent Health

Chart 3

College Attendance and Graduation and Teen Sexual Activity



Source: National Longitudinal Survey of Adolescent Health

Table 1

Academic Achievement and Teen Sexual Activity*

Academic Outcome	Abstinent Teens (Teens Who Did Not Have Intercourse Before Age 18)	Sexually Active Teens (Teens Who Had Intercourse Before Age 18)
High School Dropouts	8.6%	21.3%
High School Graduates with No College	26.4%	32.5%
Attended but Failed to Complete College	22.5%	23.5%
College Graduate or Currently Attending College	42.5%	22.6%
College Degree, BA/BS	15.8%	7.4%

* Unadjusted data

Source: National Longitudinal Survey of Adolescent Health

were aged between 19 and 25. Consequently, many had entered and were attending college but had not yet graduated.

Chart 3 shows the percentage of youth who were either currently attending or had already graduated from college by the final wave of the survey. The chart reveals a now familiar pattern: 42.5 percent of teens who remained virgins through high school were either currently attending or had already graduated from college. By contrast, only 22.6 percent of teens who sexually active before age 18 were attending or had graduated from college. The rate of college attendance/graduation among teen virgins was almost twice that of sexually active teens. (The overall differences between abstinent and sexually active teens are summarized in Table 1.)

The Role of Social Background Factors

Table 2 shows the average social characteristics of abstinent and non-abstinent teens. Overall, the two groups are similar; however, some background differences exist between the groups. Abstinent teens are more likely to come from married two-parent families, have higher family incomes, and have better educated parents. Abstinent teens are less likely to be black and more likely to be Asian.

It may be these social background factors rather than abstinence, per se, that lead to improved academic performance. To examine this possibility, we performed multi-variate logistic regression analyses that held social background factors constant. In this statistical procedure, abstinent youth were compared to sexually active youth who were otherwise identical in race, gender, family income, parental education, and a wide range of other social variables.

Four separate regression analyses were performed, measuring four different dependent or outcome variables. These academic outcome variables were: school expulsion, dropping out of high school; and current college attendance or graduation, and college graduation. (The full regressions are presented in appendix tables 1-4.)

The independent or explanatory variables used in each of the three regressions included:

- gender;
- race;
- parental education (highest grade level achieved by either parent);
- family income;
- family structure, (e.g., is the youth from a married family, a single-parent family or a step family)
- self-esteem, measured on a 1 to 5 scale;
- religiosity – a continuous variable on a scale of 1 to 4 based on the average scores of responses to the questions: how often do you attend religious services, how often do you pray, and how important is religion to you.
- youth's age at time of interview; and,
- teen abstinence – whether the youth had sexual intercourse before age 18.

Table 2

Descriptive Statistics

Variables	Abstinent Teens (Teens Who Did Not Have Sex Before Age 18)	Sexually Active Teens (Teens Who Had Sex Before Age 18)
% Female	47.6%	50.1%
% White	69.4%	68.1%
% Black	11.4%	18.2%
% Hispanic	13.0%	10.8%
% Asian	5.5%	2.1%
% From Intact Married Family	75.2%	61.9%
% From Single-Parent Family	17.4%	25.3%
% From Cohabiting or Step-Parent Family	3.2%	6.2%
% From Other Family	4.1%	6.4%
Family Income	\$50,667	\$42,893
Parent is High School Dropout	15.8%	16.7%
Parent is High School Graduate (No College)	27.5%	34.7%
Parent with Some College	28.4%	29.4%
Parent has College Degree	28.2%	19.2%
Self-Esteem Score	4.07	4.02
Religiosity Index Score	2.99	2.68
Age at Wave Three Interview	21.9 years	21.7 years

Source: National Longitudinal Survey of Adolescent Health

The detailed results for the four regression analyses are provided in the appendix.

The regression analyses show that, even after holding relevant social background variables constant, teen sexual abstinence was linked to better academic achievement. Teen abstinence was found to be a strong and significant predictor of academic success independent of other social variables. Specifically, even after controlling for social background variables, teen abstinence successfully predicted better outcomes on each of the four dependent variables. Teen sexual abstinence was associated with:

- A 40 percent lower rate of school expulsion;
- A 50 percent lower rate of dropping out of high school;
- A 70 percent increase in the probability a youth was currently attending or had graduated from college; and,
- A 66 percent increase in college graduation.

Example of Predicted Outcomes

Table 3 illustrates the linkage between sexual activity and academic outcomes when all background variables are held constant, by presenting outcomes for a representative example. The example compares predicted academic outcomes for a sexually active teen to an abstaining teen with identical background characteristics.

The table represents a hypothetical girl who has been raised in a married-couple family with average income. The girl is white and her parents are high school graduates. She is 22 years old and has average scores on self-esteem and religiosity. The table shows the predicted academic outcomes if a girl with these characteristics remained a virgin until her 18th birthday. Those outcomes are compared with the outcomes of another, otherwise identical girl who became sexually active before 18.

As the table shows, if the girl was sexually active before her 18th birthday, she would have a 16.5 percent probability of dropping out of high school. If she had abstained from sex until she was at least 18, the predicted probability of dropping out of high school falls to 8.3 percent. Girls with the specified background characteristics who abstain from sex have a 38.8 percent probability of currently attending or graduating from college. This compares to a 22.8 rate for similar girls who were sexually active before age 18.

A change in background factors such as parental education or family income would uniformly raise or lower all the academic attainment figures shown in the table; however, the comparative difference between abstaining and sexual active teens would remain unchanged.

Academic Achievement Leads to Higher Incomes

The Add Health data show that teens who abstain from sex while in high school are less likely to drop out of high school and are more likely to graduate from college when compared to teens from identical social backgrounds who are sexually active. This

Table 3

**Academic Achievement and Sexual Activity:
Predicted Outcomes Holding Background Variables Constant**

	Sexually Active Teens (Teens Who Had Intercourse Before Age 18)	Abstinent Teens (Teens Who Did Not Have Intercourse Before Age 18)
Expelled from School	3.55%	1.44%
High School Dropout	16.55%	8.28%
College Graduate or Currently Attending College	22.80%	38.8%
College Graduate	7.50%	12.49%

* Assumes a white female from an intact family with median family income, median religiosity; parents are assumed to be high school graduates.

Source: National Longitudinal Survey of Adolescent Health

higher level of educational attainment will, in turn, result in higher incomes for abstinent teens.

On average, lifetime earnings rise as education rises. This is illustrated in Table 4 using Census Bureau data.⁶ Among contemporary adults, those with a high school degree will earn about \$1,146,000 over their lives. This will be 35 percent higher than the lifetime earnings of dropouts who will earn around \$847,000 over their lives. Individuals with doctoral degrees will earn around \$3,429,000 over their lifetimes or 4.05 times the earnings of dropouts. (All figures are expressed in constant 2004 dollars.)

Earnings also increase from one generation to the next as the general level of productivity in the economy increases. For example, the average wage of workers today is about 58 percent higher than it was 40 years ago, after adjusting for inflation.⁷ Historical experience clearly shows that someone who graduates from college in 2004, on average, can expect to have a significantly higher lifetime income than someone who graduated in 1970. This is reflected in Table 4 which shows the expected lifetime earnings at each education level for current adults as well as the expected future earnings of today's teens. (All figures in the table are adjusted for inflation into constant 2004 dollars.)

Because of their higher educational attainment, teens who abstain from sex can be expected to have substantially higher incomes than sexually active counterparts. On average, teens who abstain from sex while in high school can be expected to have lifetime earnings about 16 percent higher than sexually active teens from identical racial and socioeconomic backgrounds. On average, this will translate into roughly \$370,000 more income over a lifetime (expressed in constant 2004 dollars.)⁸

Academic Differences Not Caused by Teen Births

One possible explanation of the finding that abstinent teens have better academic outcomes is that these differences in outcomes are the result of differences in pregnancy and childbirth. Obviously, teen births will significantly disrupt academic careers; teenage girls who become pregnant and give birth will be more likely to drop out of school and less likely to go to college. However, analysis shows that the differences in academic outcomes between sexually active and abstinent teens are not due to the disruptive effect

⁶ See Jennifer Cheeseman Day and Eric C. Newburger, *The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings, Current Population Report, P23-210*, U.S. Bureau of the Census, Washington, D.C., July 2002. This report gives lifetime earnings estimates in 1999 dollars. In Table 3 of the present paper all figures have been converted into 2004 dollars.

⁷ Over the last 40 years, between 1963 and 2003, the average wage and salary per full-time equivalent employee grew by 59 percent after adjusting for inflation. (Price levels adjusted by the personal consumption expenditure index.) This figure was calculated from National Income and Products Accounts of the Bureau of Economic Analysis of the U.S. Department of Commerce. See National Income and Product Accounts, tables 6.6b, 6.6d, and 2.4.4 at www.bea.doc/dn/nipaweb/selecttable.asp?selected=n

⁸ This estimate assumes that constant dollar earnings will increase over the next 40 years at the same rate as the past 40 years. Thus, after adjusting for inflation, earnings, on average, will be 58 percent higher in 2045 than in 2005. The relative incomes of individuals at various education levels are assumed to remain unchanged. Calculations available upon request from the authors.

Table 4

Lifetime Earnings and Educational Attainment
(All Figures Adjusted for Inflation)

	Projected Lifetime Earnings of Current Adults	Projected Future Lifetime Earnings of Current Teenagers	Ratio of Lifetime Earnings
High School Dropouts	\$846,714	\$1,336,961	1.00
High School Graduates	\$1,145,686	\$1,809,038	1.35
Bachelor's Degree	\$2,029,629	\$3,204,784	2.40
Doctoral Degree	\$3,428,795	\$5,414,068.00	4.05

Note: All figures in inflation-adjusted 2004 dollars. Projections of future earnings of teens assume that earnings will increase by 58 percent over the next 40 years after adjusting for inflation.

Source: U.S. Bureau of the Census

of childbearing. Even when girls who give birth before age 18 are excluded from the analysis, the academic differences between the sexually active and abstaining teens remain largely unchanged.

The Role of Educational Expectations

Another possible explanation for the association between teen sex activity and academic outcomes would be that college bound and non-college bound high school students operate under different sexual norms. Students who do not expect to go to college are on a somewhat different life path than college-oriented teens. These students will place less emphasis on school; they will become employed and self-sufficient sooner, and are likely to become parents sooner. It seems plausible that they “transition into adulthood” sooner by becoming sexually active before their college bound counterparts. If this were true, it would suggest that sexual abstinence does not have an independent role in predicting academic success. Teen sexual abstinence would merely be a byproduct of the different educational expectations of college bound and non-college bound youth.

Fortunately, the Add Health survey contains data that allow us to test this idea. The survey contains several questions that measure the educational expectations of teens. For example, the survey asks “On a scale of 1 to 5 . . . how much do you want to go to college?” It also asks “On a scale of 1 to 5 . . . how likely is it that you will go to college?” We performed multi-variate logistic regressions on youth who were 16 and younger at the time of the first wave of the survey in order to assess the role of initial educational expectations on subsequent college attendance and graduation. These regressions contained the background control variables included in the prior regressions as well as data on how much the student expected or wanted to go to college.⁹

The analyses show that for a young teen, wanting and expecting to go to college are strong predictors of subsequent college attendance and graduation. However, the significance and strength of teen sexual abstinence as a predictor of academic outcomes was unaffected by the inclusion of the data on expecting or desiring to go to college. Teen sexual abstinence remained a strong independent predictor of academic success even when educational desires and expectations were held constant. In other words, when abstinent teens were compared to sexually active teens from identical socioeconomic backgrounds and with identical educational expectations and desires, the abstinent teens were dramatically more likely to attend and graduate from college. While educational expectations are important, teen abstinence continued to have an independent effect on predicting academic success.

Do Contraceptive Users Perform as Well as Abstinent Teens?

There are two competing approaches to sex education in the United States. Abstinence education encourages teens to abstain from sexual activity. By contrast, comprehensive

⁹ Two regressions were performed: one with youth expecting to go to college as an independent variable; another with wanting to go to college as an independent variable. Data are available upon request from the authors.

sex education or safe sex programs focus, almost exclusively, in encouraging youth to use condoms. The fact that teens who are sexually abstinent perform better academically provides an additional reason for the support of abstinence education. However, it is possible that sexually active teens who use contraception may also perform better academically.

The Add Health database contains information, not merely on sexual activity, but on contraceptive use as well. Sexually active teens are asked whether or not they used a condom during first vaginal intercourse. Condom use during first intercourse is often mentioned as a measure of success for safe sex educators and is regarded as predictive of subsequent condom use. Thus, the Add Health survey enables us to answer the question: Do sexually active teens who use contraception have better academic outcomes than those who do not? Further, do teenage contraceptive users have the same level of academic achievement as abstinent teens?

To test these questions we again employed multi-variate logistic regression analyses. A three-part dummy variable for sexual activity and condom use was created:

- Virgins – youth who did not engage in vaginal intercourse before their 18th birthday
- Condom users – youth who engaged in vaginal intercourse before their 18th birthday and used contraception during first intercourse¹⁰
- Non-condom users – youth who engaged in vaginal intercourse before their 18th birthday and did not use contraception during first intercourse

The same control variables were employed as in the previous regressions: age at interview, race, gender, family structure, family income, parental education, self-esteem, and religiosity.

The results are presented in Table 5 which shows the expected outcomes for a white female from an intact family with median income. (The full regressions are included in appendix tables 5, 6, and 7.) The girl's parents are assumed to be high school graduates; the girl has median religiosity and self-esteem. As in Table 3, a change in background factors such as parental income would uniformly raise or lower the predicted academic attainment figures shown in the table; however, the comparative differences between abstinent teens, condom users, and non-condom users would remain unchanged.

In general, sexually active teens who used contraception have somewhat better academic outcomes than sexually active teens who did not use contraception. However, the outcomes of contraceptive users fall well below those of abstinent teens. For example, as Table 5 shows, 37.9 percent of abstinent teens are currently attending or have graduated

¹⁰ The regressions employed condom users as the default variable; this means the other two variables were measured in comparison to it.

Table 5

Teen Abstinence, Condom Use, and Academic Outcomes
(Predicted Outcomes After Holding Socio-Economic Variables Constant)

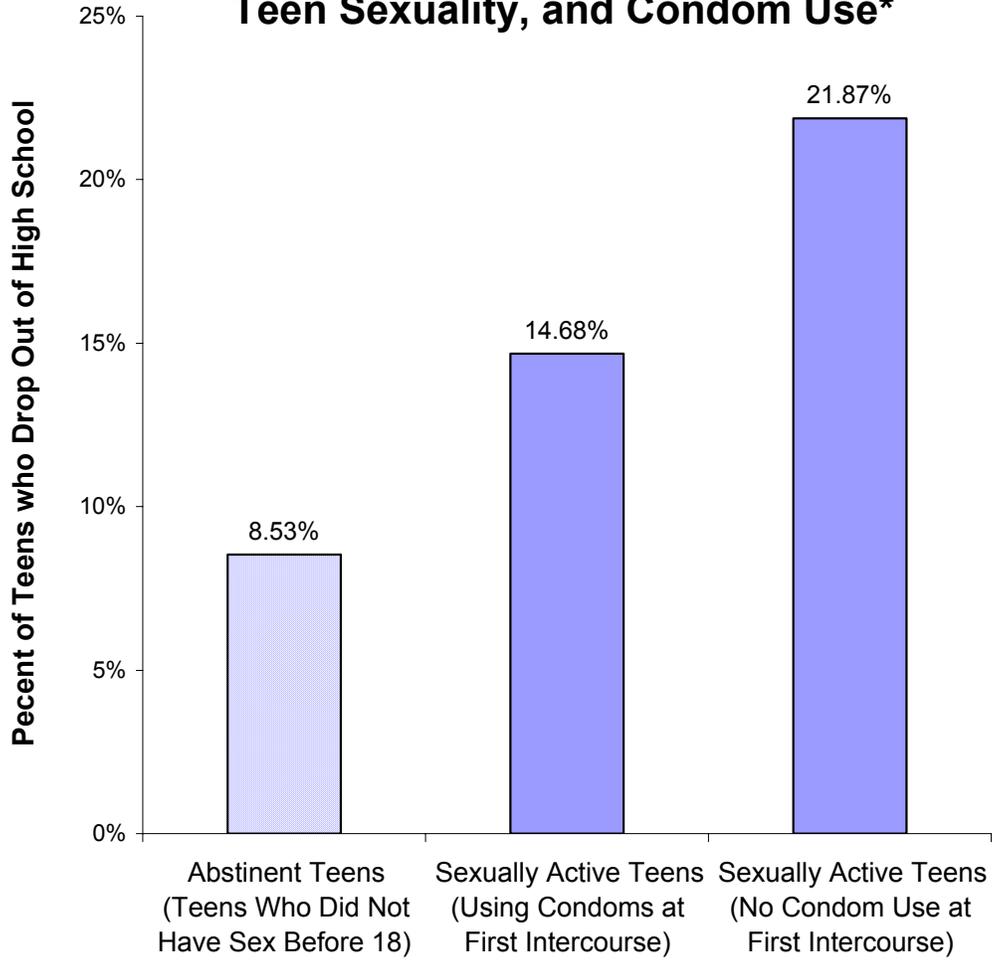
Educational Outcomes	Abstinent Teens (Teens Who Did Not Have Intercourse Before Age 18)	Sexually Active (Teens Who Did Use a Condom at First Intercourse)	Sexually Active (Teens with No Condom Use at First Intercourse)
Expelled from School	1.4%	3.1%	3.8%
High School Dropout	8.5%	14.7%	21.9%
Currently Attending College or College Graduate	37.9%	24.0%	18.7%
College Graduate	12.6%	8.3%	6.5%

Note: Assumes a white female from an intact family with median family income, median religiosity, and parents are high school graduates

Source: National Longitudinal Survey of Adolescent Health

Chart 4

High School Dropout Rates, Teen Sexuality, and Condom Use*

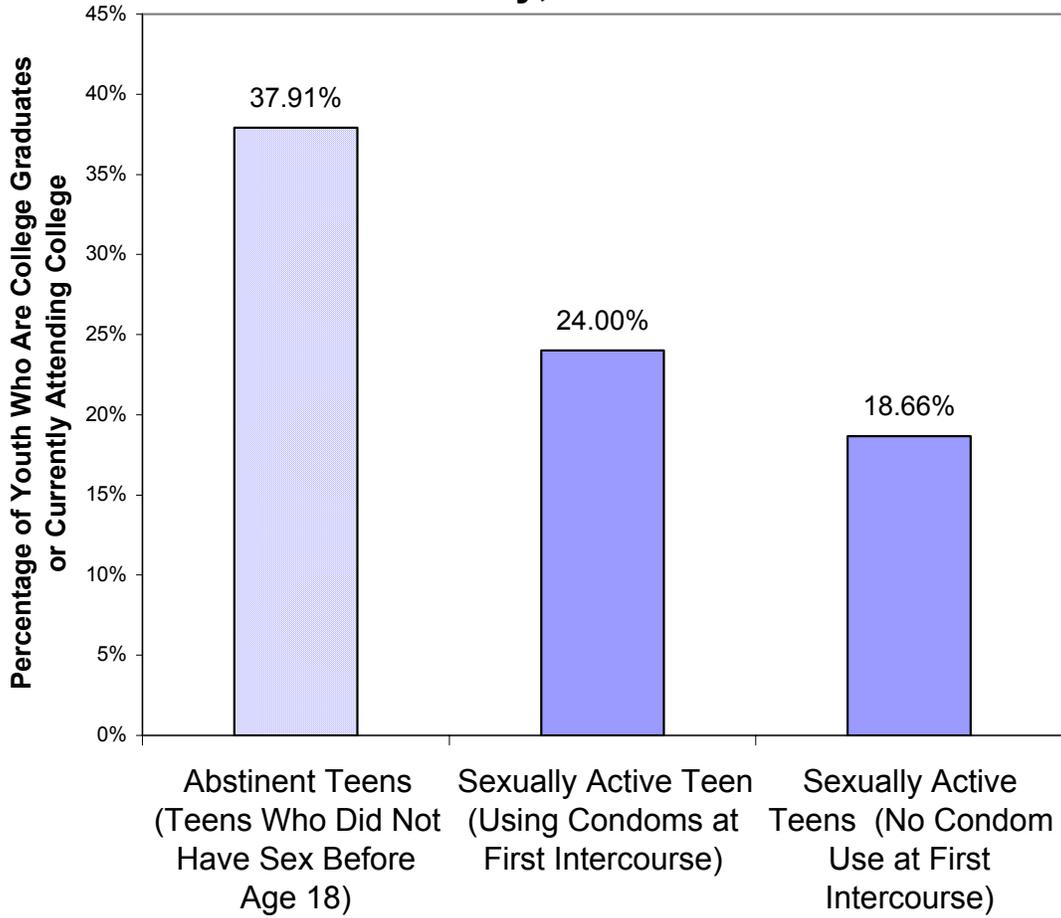


* Predicted Values, see Table 5

Source: National Longitudinal Survey of Adolescent Health

Chart 5

College Attendance and Graduation, Teen Sexual Activity, and Condom Use*



* Predicted Values, see Table 5

Source: National Longitudinal Survey of Adolescent Health

from college.¹¹ This compares to 24.0 percent for contraceptive users and 18.7 percent for non-contraceptive users. While contraceptive use does have some association with academic achievement, its impact is far less than teen abstinence. In general, the impact of contraceptive use as a predictor of academic outcomes is around one-third that of teen abstinence.

Abstinence and Academic Achievement: Patterns of Causation

Teen sexual abstinence is obviously predictive of subsequent academic achievement. When compared to youth of identical socio-economic background, abstinent teens are more likely to graduate from high school, attend college, and graduate from college. But, the fact that abstinent youth have higher academic achievement does not mean that abstinence directly causes academic achievement. Obviously, abstaining from sex does not automatically increase your algebra grades. In reality, the potential causal connections between abstinence and academic outcomes are important and complex.

The potential causal linkages between sex activity and academic outcomes are outlined in the model presented in Chart 6. The chart shows three clusters of behaviors and traits and their relationships to academic outcomes. The three clusters are: 1) teen sexual abstinence; 2) academic capacity (including goals, skills, and self-discipline); and, 3) personality traits. The arrows represent potential causal influences between the clusters. In most cases, influence or causation is likely to flow both ways.

Teen abstinence is likely to contribute directly to academic capacity. Human attention and motivation are finite; when greater energy and interest are invested in sexual activity, the drive for academic performance is likely to diminish. Sexually active teens may become preoccupied with the present; long-term academic goals may have diminished importance. In addition, teenage sexual relationships are inherently short-term and unstable. The collapse of intimate relationships is likely to result in emotional turmoil and depression which, in turn, will undermine academic performance. Finally, sexually active teens may be more likely to associate with peers who have less interest in academics; the influence of these peers may diminish the teens' own focus of academic performance. Overall, the practice of sexual abstinence is likely to serve as a protective barrier which insulates the teenager from disruptive and negative influences and enables the teen to better focus on immediate academic performance and longer-term life goals.

It is likely that academic capacity or discipline, reciprocally, encourages abstinence. Teens who devote considerable time to study and other challenging activities have less idle time to fall prey to temptations. Teens with higher academic ambitions may be more likely to draw personal meaning from those ambitions and be less likely to be distracted by transitory sexual interests.

¹¹ The inclusion of the condom use variables slightly alter the predictive coefficients of the other independent variables in the regression. As a result of this, the predicted outcomes for the abstinent teen in table 4 are slightly different from the abstinent teen in table 5.

Chart 6

Potential Causal Linkages

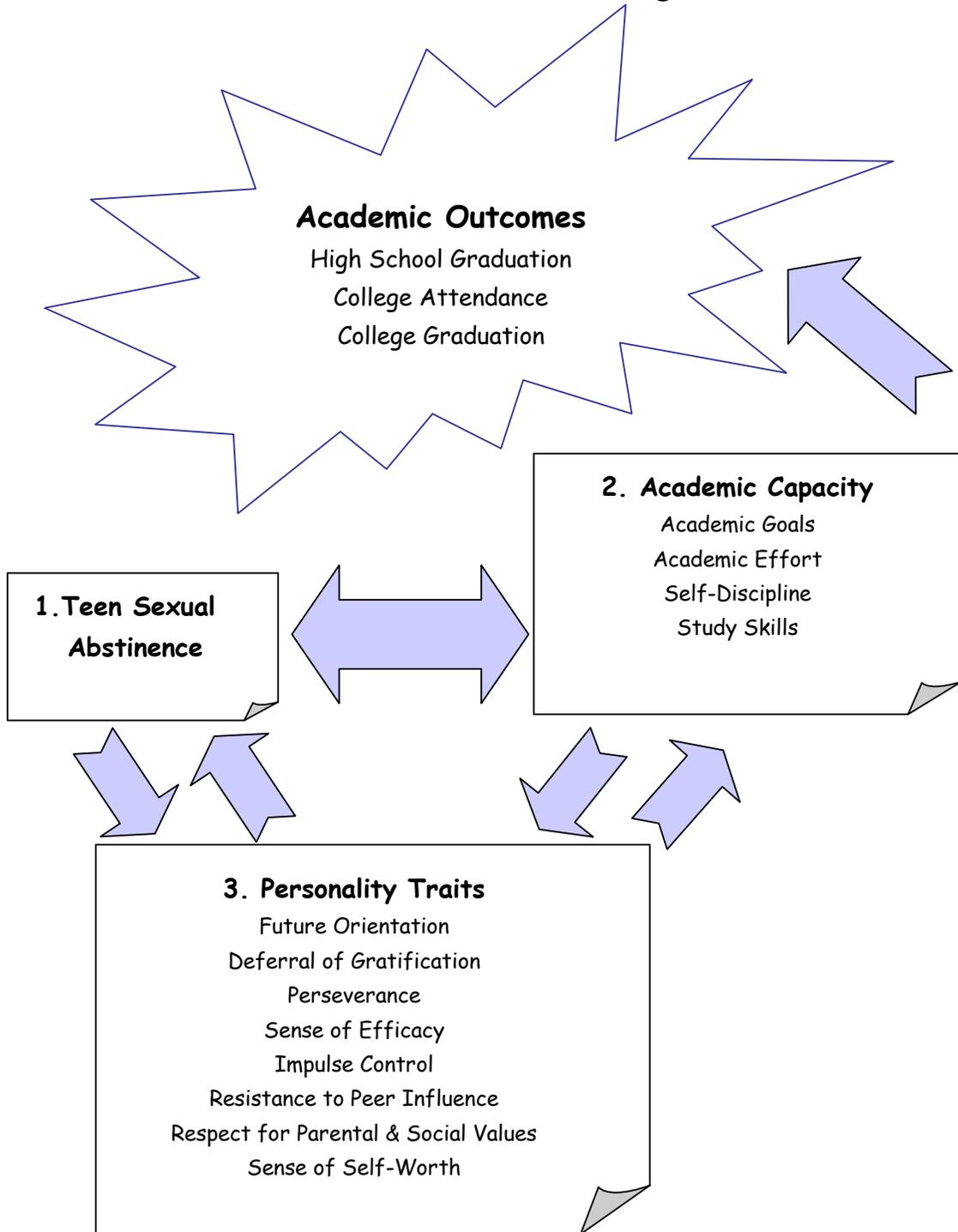


Chart 6 also presents a “personality traits” cluster that contains a number of characteristics or mental habits that are important to both abstinence and academic performance. *Future orientation* measures the degree to which an individual is focused on long-term goals in the future as opposed to immediate, short-term interests. *Deferral of gratification* is the ability to postpone current pleasures for larger rewards in the future. *Perseverance* is the ability to stick with a task or commitment. *Sense of efficacy* represents the individual’s belief that current actions can positively affect future outcomes. *Impulse control* is the ability to act in a planned manner, controlling emotions and desires. *Resistance to peer influence* is an individual’s ability to reject or isolate himself from negative influences. *Respect for parental and social values* reflects the individual’s agreement and adherence to those values; the opposite condition would be rebelliousness. *Sense of self-worth* reflects an individual’s belief that he has a value or dignity that should be preserved.

These personality traits clearly contribute to both sexual abstinence and academic capacity. Teens who possess these positive characteristics are more likely both to abstain and to have better academic skills and motivation. Thus, the statistical association between abstinence and academic achievement will, in part, be the result of underlying character traits that promote both outcomes. In other words, abstinent teens are likely to have positive personality traits and mental habits that also promote academic effort and success.

For example, the Add Health Survey contains questions which measure impulse control and sense of efficacy. Teens who score high on these variables are substantially more likely to abstain from sex and to have better academic performance.¹² The same is likely to be true for the other personality traits shown in Chart 6.

Finally, while positive character traits will promote abstinence, reciprocally, the practice of abstinence is likely to strengthen positive character traits. The personality traits listed in Chart 6 are not innate, unchanging qualities. To a considerable degree, these traits are habits of the heart and mind that can develop and strengthen over time. Thus, one learns to persevere by, in fact, persevering in specific tasks. Without actual practice, this character trait cannot develop. Similarly, one learns future orientation and deferral of gratification by actually planning for the future and postponing immediate pleasure. One develops a sense of personal efficacy by repeatedly achieving worthwhile goals, and so on.

The deliberate practice of sexual abstinence will enable a teenager to strengthen and reinforce each of the character traits listed in Chart 6. Development of these traits will have a spillover effect on academic performance. By contrast, permissive sexual activity is likely to weaken these traits. A few examples will illustrate this point. Sexual interest and desire are very strong human motivations. An individual who has learned to control sexual impulses is likely to develop a capacity to control less powerful impulses as well; this self-control will enable the individuals to better focus on academic work and

¹² Data available on request from the authors.

achievement. Individuals who develop a capability to resist negative peer influences concerning sex activity are more likely to be able to resist other negative peer influences concerning drugs, alcohol, violence, and indolence. This, in turn, would clearly contribute to academic success. In contrast, teens who rebel against parental values concerning sexual activity are more likely to question values in other areas such as school work.

The Role of Abstinence Education

Abstinence education is of fairly recent origin. Despite this recent debut, there are currently ten evaluations showing that abstinence education programs are effective in reducing teen sexual activity.¹³ Additional evaluations will become available in the future as abstinence programs continue to develop.

This paper has shown a dramatic positive association between teen abstinence and academic outcomes. It seems reasonable that society should promote abstinence education not only because of the direct health, economic, and psychological benefits of teen abstinence but also because sustained abstinence is likely to lead to academic improvement.

While it is difficult to prove causation, it seems clear that abstinence contributes to academic achievement in two ways. First, it is likely that at least part of the correlation between teen virginity and academic outcomes is due to the fact that abstinent teens are subject to less emotional and psychological distraction. Thus, it seems likely that practicing abstinence will provide a more stable and productive context for academic performance.

Second, the positive association between abstinence and higher academic performance is likely to be due to the fact that both behaviors are fostered by important underlying personality characteristics. An explicit goal of many abstinence education programs is to foster these character traits. Abstinence education is not just about saying “no to sex.” Abstinence education teaches youth: to defer gratification, to take the future seriously and plan for it; to respect parental and social values; and to genuinely respect self and others. Clearly, learning these skills and values will have an impact not just on sex activity but on academic achievement and other life goals as well.

By contrast, comprehensive sex education or safe sex education does not teach the values and life skills that will significantly contribute to improved academic outcomes. Comprehensive sex education curricula convey the message that it is okay for teens to have sex as long as they use condoms.¹⁴ But, use of contraception by teens has only a modest association with academic achievement. Compared to teen abstinence, contraceptive use is a weak predictor of positive academic outcomes.

¹³ Robert Rector, “The Effectiveness of Abstinence Education Programs in Reducing Sexual Activity Among Youth” *The Heritage Foundation Backgrounder*, No. 1533, April 8, 2002.

¹⁴ Shannan Martin, Robert Rector, and Melissa G. Pardue, *Comprehensive Sex Education vs. Authentic Abstinence* (Washington, DC: The Heritage Foundation, 2004).

By repeatedly presenting the notion that teen sexual activity is normal and acceptable, comprehensive sex education curricula embrace the hedonistic values of popular culture. In accepting the shallow physical hedonism inherent in transitory and casual sex, these curricula undermine character traits critical to success in life, such as respect for parental values, impulse control, and perseverance. By representing casual teen sex as normal and acceptable, these curricula also undermine genuine respect for others.

What Should We Teach To Teens?

Today's teenagers live in a sex-saturated culture. Teen virgins are treated as oddities or misfits in popular media and even in sex education. This negative representation of teen virginity is obviously harmful.

Over 90 percent of teens say they should be taught to abstain from sex until they have, at least, finished high school. We should reaffirm youth's desire to abstain by telling them the truth:

- 1.) Teens who abstain from sex are winners. They are more likely to be successful in life, academically and financially.
- 2.) Teen sexual relationships are inherently transitory and unstable. Sixty one percent of teen sexual relationships end within three months; 80 percent end within six months.¹⁵ Teens who abstain will avoid the emotional turmoil and unhappiness that comes with these broken relationships. By avoiding the emotional turmoil involved in transitory and unstable sexual relationships, teens will be able to focus more on studies and do better in school.
- 3.) Teens who deliberately abstain from sex have positive character traits that will lead to success later in life. The practice of abstinence as teens will strengthen these positive character traits.

Conclusion

Current scientific evidence shows that teens who abstain from sexual activity are less likely to have children out-of-wedlock; less likely to live in poverty and on welfare; more likely to have stable marriages as adults. This study provides new findings on the linkage between teen sexual abstinence and improved academic achievement. Teen virginity is a strong independent predictor of educational success. When compared to youth from identical socio-economic background, teens who remain virgins in high school are dramatically less likely to drop out of high school and are dramatically more likely to graduate from college.

¹⁵ These data refer to teen's first sexual relationships. Suzanne Ryan, Jennifer Manlove, Kerry Franzetta, "The First Time: Characteristics of Teens' First Sexual Relationships," *Child Trends Research Brief*, No. 2003-16, August, 2003.

Unfortunately, American teens live in a sex-saturated popular culture. While parents overwhelmingly support abstinence education, relatively few teens are taught abstinence in the schools. The analysis presented in this paper indicates that youth would benefit in manifold ways from greater access to abstinence education.

Appendix Table 1						
Dependent Variable: Ever Expelled						
Population: All Add Health Youth				Number of Observations:		10226
Independent Variables	Logged Odds Coefficient	Standard Error	Wald (t)	Significance	Note	Odds Ratio
Age at Interview	-0.021	0.032	-0.66	0.507		0.979
Race = Black	0.779	0.177	4.40	0.000	***	2.179
Race = American Indian	0.894	0.291	3.07	0.003	***	2.446
Race = Asian	-0.660	0.405	-1.63	0.106		0.517
Race = Hispanic (compared to white)	0.221	0.191	1.16	0.249		1.248
Female (compared to male)	-1.248	0.109	-11.43	0.000	***	0.287
Self-Esteem Index Score	-0.394	0.100	-3.96	0.000	***	0.674
Income in Thousands of Dollars	-0.003	0.003	-0.87	0.388		0.997
Religiosity Index Score	-0.177	0.053	-3.37	0.001	***	0.838
Raised in Step/Cohabiting Family	0.065	0.201	0.32	0.748		1.067
Raised in Single-Parent Family	0.445	0.148	3.02	0.003	***	1.560
Raised in Other Family Type (compared to intact)	0.485	0.215	2.25	0.026	**	1.624
Parent Graduated from High School (No College)	-0.408	0.135	-3.03	0.003	***	0.665
Parent Attended College (No Degree)	-0.635	0.162	-3.91	0.000	***	0.530
Parent Graduated from College (compared to HS dropout)	-1.229	0.221	-5.55	0.000	***	0.293
Never Had Sex Under the Age of 18	-0.928	0.136	-6.81	0.000	***	0.395
(constant)	0.976	0.888	1.10	0.274		
Source: National Longitudinal Study of Adolescent Health						
Note: *** Significant at a 99 percent confidence level						
** Significant at a 95 percent confidence level						
* Significant at a 90 percent confidence level						

Appendix Table 2						
Dependent Variable: Dropped Out of High School						
Population: All Add Health Youth				Number of Observations:		10229
Independent Variables	Logged Odds Coefficient	Standard Error	Wald (t)	Significance	Note	Odds Ratio
Age at Interview	-0.080	0.025	-3.16	0.002	***	0.923
Race = Black	-0.075	0.109	-0.68	0.496		0.928
Race = American Indian	0.100	0.410	0.24	0.808		1.105
Race = Asian	-0.709	0.326	-2.18	0.031	**	0.492
Race = Hispanic (compared to white)	0.124	0.122	1.02	0.312		1.132
Female (compared to male)	-0.528	0.071	-7.46	0.000	***	0.590
Self-Esteem Index Score	-0.454	0.075	-6.08	0.000	***	0.635
Income in Thousands of Dollars	-0.011	0.003	-4.14	0.000	***	0.989
Religiosity Index Score	-0.193	0.038	-5.13	0.000	***	0.824
Raised in Step/Cohabiting Family	0.441	0.139	3.17	0.002	***	1.555
Raised in Single-Parent Family	0.274	0.110	2.50	0.014	**	1.316
Raised in Other Family Type (compared to intact)	0.911	0.172	5.31	0.000	***	2.488
Parent Graduated from High School (No College)	-0.587	0.092	-6.40	0.000	***	0.556
Parent Attended College (No Degree)	-0.920	0.119	-7.73	0.000	***	0.398
Parent Graduated from College (compared to HS dropout)	-1.336	0.145	-9.24	0.000	***	0.263
Never Had Sex Under the Age of 18	-0.787	0.092	-8.56	0.000	***	0.455
(constant)	4.019	0.702	5.73	0.000	***	
Source: National Longitudinal Study of Adolescent Health						
Note: *** Significant at a 99 percent confidence level						
** Significant at a 95 percent confidence level						
* Significant at a 90 percent confidence level						

Appendix Table 3						
Dependent Variable: Attended College						
Population: All Add Health Youth				Number of Observations:		10234
Independent Variables	Logged Odds Coefficient	Standard Error	Wald (t)	Significance	Note	Odds Ratio
Age at Interview	0.098	0.024	4.05	0.000	***	1.103
Race = Black	-0.202	0.143	-1.41	0.160		0.817
Race = American Indian	-0.617	0.287	-2.15	0.034	**	0.540
Race = Asian	0.747	0.298	2.51	0.013	**	2.110
Race = Hispanic (compared to white)	0.076	0.127	0.60	0.553		1.078
Female (compared to male)	0.568	0.071	8.02	0.000	***	1.765
Self-Esteem Index Score	0.418	0.056	7.45	0.000	***	1.519
Income in Thousands of Dollars	0.015	0.002	7.31	0.000	***	1.015
Religiosity Index Score	0.210	0.037	5.74	0.000	***	1.233
Raised in Step/Cohabiting Family	-0.421	0.122	-3.46	0.001	***	0.656
Raised in Single-Parent Family	-0.201	0.086	-2.33	0.021	**	0.818
Raised in Other Family Type (compared to intact)	-1.002	0.144	-6.97	0.000	***	0.367
Parent Graduated from High School (No College)	0.697	0.087	8.01	0.000	***	2.008
Parent Attended College (No Degree)	1.046	0.103	10.18	0.000	***	2.846
Parent Graduated from College (compared to HS dropout)	1.967	0.141	13.98	0.000	***	7.149
Never Had Sex Under the Age of 18	0.633	0.076	8.33	0.000	***	1.883
(constant)	-6.179	0.616	-10.03	0.000	***	
Source: National Longitudinal Study of Adolescent Health						
Note: *** Significant at a 99 percent confidence level						
** Significant at a 95 percent confidence level						
* Significant at a 90 percent confidence level						

Appendix Table 4						
Dependent Variable: Currently Attending or Graduated from College						
Population: All Add Health Youth						
Independent Variables					Number of Observations: 10233	
	Logged Odds Coefficient	Standard Error	Wald (t)	Significance	Note	Odds Ratio
Age at Interview	0.031	0.026	1.19	0.236		1.031
Race = Black	-0.087	0.160	-0.54	0.588		0.917
Race = American Indian	-0.547	0.635	-0.86	0.391		0.579
Race = Asian	0.494	0.300	1.65	0.102		1.639
Race = Hispanic (compared to white)	-0.238	0.117	-2.04	0.044	**	0.788
Female (compared to male)	0.489	0.070	6.94	0	***	1.631
Self-Esteem Index Score	0.435	0.058	7.44	0	***	1.545
Income in Thousands of Dollars	0.012	0.002	5.93	0	***	1.012
Religiosity Index Score	0.184	0.039	4.71	0	***	1.202
Raised in Step/Cohabiting Family	-0.396	0.162	-2.45	0.016	**	0.673
Raised in Single-Parent Family	-0.294	0.100	-2.96	0.004	***	0.745
Raised in Other Family Type (compared to intact)	-0.801	0.198	-4.05	0	***	0.449
Parent Graduated from High School (No College)	0.728	0.119	6.14	0	***	2.072
Parent Attended College (No Degree)	0.943	0.137	6.89	0	***	2.567
Parent Graduated from College (compared to HS dropout)	1.967	0.146	13.5	0	***	7.150
Never Had Sex Under the Age of 18	0.764	0.068	11.29	0	***	2.147
(constant)	-5.804	0.668	-8.69	0	***	
Source: National Longitudinal Study of Adolescent Health						
Note: *** Significant at a 99 percent confidence level						
** Significant at a 95 percent confidence level						
* Significant at a 90 percent confidence level						

Appendix Table 5						
Dependent Variable: Dropped Out of High School						
Population: All Add Health Youth						
					Number of Observations:	9725
Independent Variables	Logged Odds Coefficient	Standard Error	t-test	Significance	Note	Odds Ratio
Age at Interview	-0.065	0.027	-2.37	0.019	**	0.937
Race = Black	-0.187	0.127	-1.47	0.143		0.829
Race = American Indian	0.075	0.425	0.18	0.861		1.078
Race = Asian	-0.679	0.311	-2.18	0.031	**	0.507
Race = Hispanic (compared to white)	0.179	0.128	1.40	0.163		1.196
Female (compared to male)	-0.466	0.073	-6.36	0.000	***	0.627
Self-Esteem Index Score	-0.440	0.075	-5.87	0.000	***	0.644
Income in Thousands of Dollars	-0.010	0.003	-3.92	0.000	***	0.990
Religiosity Index Score	-0.165	0.040	-4.09	0.000	***	0.848
Raised in Step/Cohabiting Family	0.548	0.158	3.46	0.001	***	1.730
Raised in Single-Parent Family	0.375	0.111	3.38	0.001	***	1.455
Raised in Other Family Type (compared to intact)	0.943	0.173	5.45	0.000	***	2.567
Parent Graduated from High School (No College)	-0.596	0.108	-5.50	0.000	***	0.551
Parent Attended College (No Degree)	-0.867	0.128	-6.76	0.000	***	0.420
Parent Graduated from College (compared to HS dropout)	-1.269	0.150	-8.47	0.000	***	0.281
Never Had Sex Under the Age of 18	-0.593	0.101	-5.87	0.000	***	0.552
First Sex Under 18, no Contraception (compared to with contraception)	0.505	0.089	5.65	0.000	***	1.658
(constant)	3.324	0.760	4.37	0.000	***	
Source: National Longitudinal Study of Adolescent Health						
Note: *** Significant at a 99 percent confidence level						
** Significant at a 95 percent confidence level						
* Significant at a 90 percent confidence level						

Appendix Table 6						
Dependent Variable: Graduated from College						
Population: All Add Health Youth						
					Number of Observations:	9729
Independent Variables	Logged Odds Coefficient	Standard Error	t-test	Significance	Note	Odds Ratio
Age at Interview	0.691	0.044	15.66	0.000	***	1.995
Race = Black	-0.351	0.250	-1.40	0.163		0.704
Race = American Indian	-2.346	0.987	-2.38	0.019	**	0.096
Race = Asian	0.135	0.342	0.39	0.695		1.144
Race = Hispanic (compared to white)	-0.511	0.170	-3.00	0.003	***	0.600
Female (compared to male)	0.733	0.094	7.83	0.000	***	2.082
Self-Esteem Index Score	0.374	0.115	3.25	0.001	***	1.454
Income in Thousands of Dollars	0.006	0.001	6.13	0.000	***	1.006
Religiosity Index Score	0.116	0.065	1.78	0.077	*	1.123
Raised in Step/Cohabiting Family	-0.625	0.309	-2.02	0.045	**	0.535
Raised in Single-Parent Family	-0.448	0.135	-3.32	0.001	***	0.639
Raised in Other Family Type (compared to intact)	-1.094	0.379	-2.88	0.005	***	0.335
Parent Graduated from High School (No College)	1.092	0.256	4.27	0.000	***	2.979
Parent Attended College (No Degree)	1.128	0.262	4.30	0.000	***	3.090
Parent Graduated from College (compared to HS dropout)	2.124	0.274	7.75	0.000	***	8.364
Never Had Sex Under the Age of 18	0.460	0.132	3.49	0.001	***	1.584
First Sex Under 18, no Contraception (compared to with contraception)	-0.288	0.163	-1.77	0.080	*	0.750
(constant)	-21.438	1.232	-17.39	0.000	***	
Source: National Longitudinal Study of Adolescent Health						
Note: *** Significant at a 99 percent confidence level						
** Significant at a 95 percent confidence level						
* Significant at a 90 percent confidence level						

Appendix Table 7						
Dependent Variable: Currently Attending or Graduated from College						
Population: All Add Health Youth						
Independent Variables					Number of Observations:	9729
	Logged Odds	Standard Error	t-test	Significance	Note	Odds Ratio
Age at Interview	0.0193258	0.0255396	0.76	0.451		1.01951375
Race = Black	-0.0544452	0.1555357	-0.35	0.727		0.9470104
Race = American Indian	-0.7204681	0.6727854	-1.07	0.286		0.48652446
Race = Asian	0.6025687	0.3096138	1.95	0.054	*	1.82680529
Race = Hispanic (compared to white)	-0.2312226	0.1217374	-1.9	0.06	*	0.7935628
Female (compared to male)	0.4615274	0.0703676	6.56	0	***	1.58649535
Self-Esteem Index Score	0.4524	0.05895	7.67	0	***	1.57208066
Income in Thousands of Dollars	0.0130627	0.0019629	6.65	0	***	1.01314839
Religiosity Index Score	0.1888311	0.0390806	4.83	0	***	1.20783693
Raised in Step/Cohabiting Family	-0.2249024	0.179965	-1.25	0.214		0.79859416
Raised in Single-Parent Family	-0.2487582	0.1033742	-2.41	0.018	**	0.7797685
Raised in Other Family Type (compared to intact)	-0.7268573	0.2197371	-3.31	0.001	***	0.48342587
Parent Graduated from High School (No College)	0.6756347	0.1208679	5.59	0	***	1.96527994
Parent Attended College (No Degree)	0.8496451	0.1424152	5.97	0	***	2.33881666
Parent Graduated from College (compared to HS dropout)	1.864163	0.1473845	12.65	0	***	6.45053453
Never Had Sex Under the Age of 18	0.6634682	0.075259	8.82	0	***	1.94151423
First Sex Under 18, no Contraception (compared to with contraception)	-0.3358733	0.1002362	-3.35	0.001	***	0.71471365
(constant)	-5.561285	0.655038	-8.49	0	***	
Source: National Longitudinal Study of Adolescent Health						
Note: *** Significant at a 99 percent confidence level						
** Significant at a 95 percent confidence level						
* Significant at a 90 percent confidence level						