Testing a Risk Avoidance Model:

Evaluation of the Heritage Keepers Abstinence Education Program

The Institute
for
Research & Evaluation

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Presentation Overview

- Examine the viability of a risk avoidance/primary prevention strategy.

- Identify the causal *mechanisms* and mediating factors that explain behavioral outcomes.

- Illustrate a "utilization focused" evaluation effort.

- Test some practical design strategies for comparison groups in settings where random assignment is neither feasible nor practical.

Program Overview

A Replicable

"Process Model "

(SC, GA, KY, ME, RI, and the Caribbean)

Program Overview

- school and community based components
- training, monitoring and evaluation systems

Theoretical Foundation

- Welfare Reform - two parent families, with the hope for improving outcomes for children

- Title V, Section 510 A through H - standards for federally funded abstinence education

- Dr. Weed's work

Curricula & Methodology

CORE SCHOOL-BASED COMPONENT:

Heritage Keepers

Abstinence Education I & II

450 minute interactive presentation

(ten 45-minute or five 90-minute sessions)

Curricula & Methodology

Provided during

- regular classroom time in public and private schools, and

- in community institutions and agencies.

(can stand alone or be used with other components)

Curricula & Methodology

MAINTENANCE COMPONENT:

Heritage Keepers Life Skills I – V

Twelve 45-minute character-based lessons (per level) for classroom, after-school, or community-based settings

Curricula & Methodology

COMMUNITY-BASED COMPONENTS

- Parent
- Faith Agency
- Media
- Family Assets and Character Councils

Curricula & Methodology

Heritage Keepers Abstinence Education I

- Personal and Familial values
- Reproduction and Family Formation
- Marriage and Protective Boundaries
- STIs/STDs
- Sex, Love and Relationships
- Moving Past Objectification
- SAFE Plan
- Commitment Cards

Curricula & Methodology

Heritage Keepers Abstinence Education II

- Review of Heritage Keepers Ab-Ed I
- Balancing Popularity with Personal Values
- Alcohol, Drugs and Sex
- Dating and Relationships
- Cohabitation

Curricula & Methodology

Heritage Keepers Abstinence Education II (cont)

- Marriage
- Setting Boundaries and Goals
- Communication
- Media, Sex and Profit
- SAFE Plan
- Commitment Cards

Both levels include interactive activities and videos.

Training

Training:

- five days formal training
- in-house practice
- shadowing

Strong emphasis on theory and methodology, as well as content.

Fidelity to Plan

Fidelity to Plan is monitored through:

- computerized schedules
- scan sheets
- on-site observation
- evaluation feedback systems

Abstinence Education & Behavior

Focus on encouraging risk avoidance behavior through

- Applying respected theory and methodology to program development
- Development of effective training, monitoring, evaluations and feedback systems
- Replicating effective initiatives

Utilization Focused Evaluation Process

*Synergistic Cycle*

Research informs development.

Implementation provides a testing ground for research.

Development improves implementation.

Initiation Rate:
Program vs. Comparison Group

- Program students: 14.5% initiated sex (total n=1216)

- Control group: 26.5% initiated sex (n = 253)

- The initiation rate for the program group was 45% lower than for the comparison group.

  (26.5 – 14.5/26.5 = 45%).
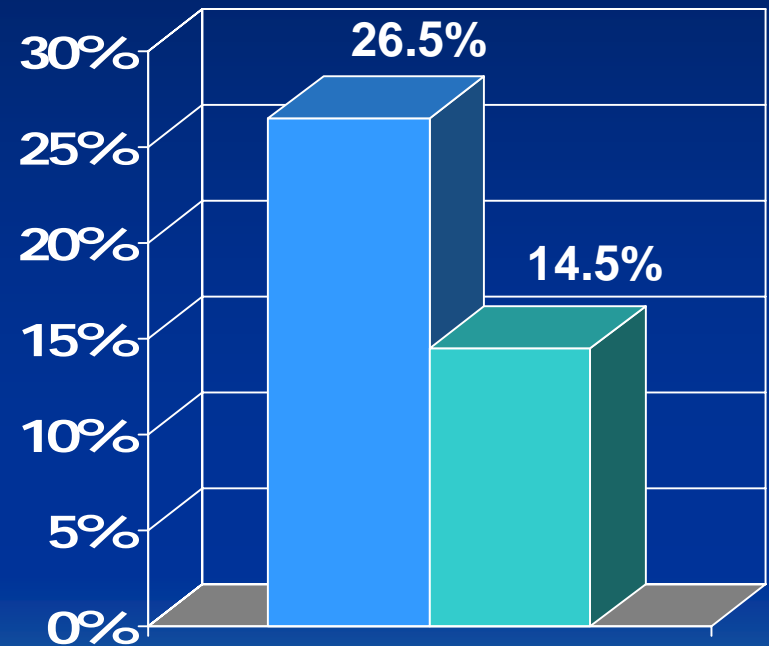
Results testing

- Can we believe these results? Can we have justifiable confidence in the data?
- Can we make the causal attribution – that the program is responsible for all or most of these initiation rate differences?

Alternative Explanations

Sample selection bias?

Sample attrition bias?

A persistent, sometimes formidable, challenge in doing field research is to come up with an adequate comparison group -- A reasonably good match between program and comparison groups *on the variables that really matter*. And to then maintain the integrity of those groups over time. Often, random assignment is not feasible or practical. For example, in this project, we could not find a good way to do random assignment within the school, and eliminate group intermingling, contamination, and ensure group permanence in the school setting.

Design examples: From weaker to stronger

Low inference

High inference

- Post test only
- Post test only, synthetic comparison group
- Pre and post, unlinked group comparison
- Pre and post, linked (repeated measures analysis)
- Pre and post, linked, matched comparison group (quasi-experimental designs)
- Pre and post, linked, random assignment to groups (experimental design)

Demographic Comparison

	Program N=1281	Comparison N=254	Sig. test (F, p)
Grade 7th	53.2%	33.5%	3.42 ***
Grade 8th	19.1%	18.9%	.03
Grade 9th	27.7%	47.6%	4.00 ***
Female	62.2%	63.8%	.38
Male	37.8%	36.2%	.29
Black	45.6%	57.9%	2.66 **
White	54.4%	42.1%	2.37 *
Repeat a grade	16.4%	18.7%	.38

Do the sample differences explain the observed behavioral outcome differences?
We did three things to answer this:

- We controlled statistically for the sample differences

- We did analyses to see if results were consistent across sub groups

- We developed a matching procedure using propensity scores which provided well matched groups for comparison
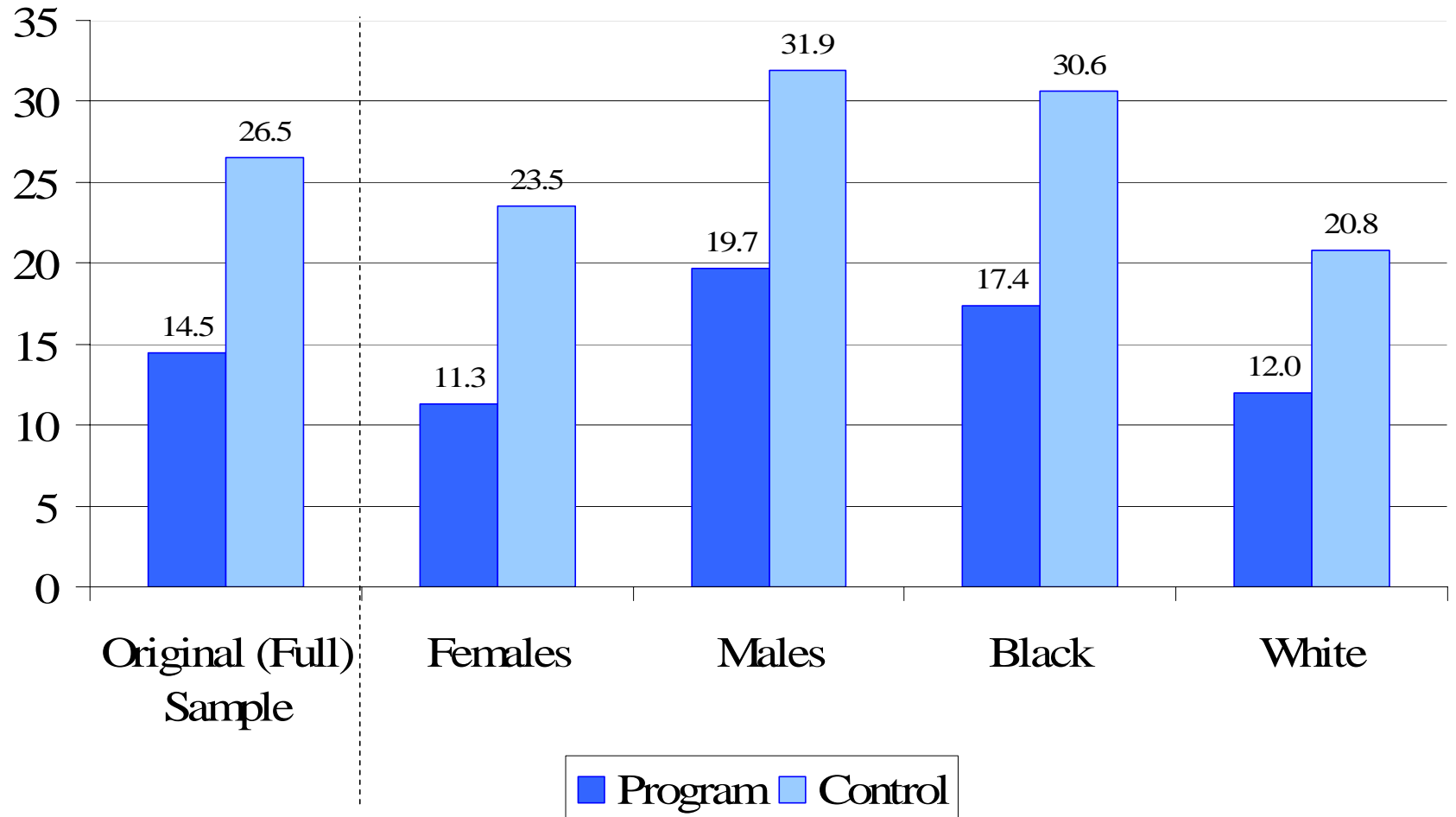
Logistic Reg., prediction of Initiation

source	df	B	SE	Exp(B)
8th vs 7th	1	-.105	.207	.90
9th vs 7th	1	.085	.176	1.09
Black vs White	1	.427	.155	1.53**
Affirm	1	.017	.124	1.02
Intent	1	-.147	.108	0.86
Future	1	-.09	.095	0.91
Justification	1	-.301	.119	0.74**
Efficacy	1	-.231	.094	0.79**
Program	1	-.617	.181	0.539**
Constant	1	-1.61	.098	0.199***

N=1,448

*p<.05, **p<.01, ***p<.001

Initiation Rate Differences Among Various Subgroups

Subgroup	Program	Control
Original (Full) Sample	14.5	26.5
Females	11.3	23.5
Males	19.7	31.9
Black	17.4	30.6
White	12.0	20.8

Demographic Comparison

	Program N=237	Comparison N=247	Sig. test
Grade 7th	31.6%	32.0%	NS
Grade 8th	19.4%	19.4%	NS
Grade 9th	48.9%	48.6%	NS
Female	63.3%	63.6%	NS
Male	36.7%	36.4%	NS
Black	57.0%	57.1%	NS
White	43.0%	42.9%	NS
Repeat a grade	19.8%	18.4%	NS

Mediator Variable Comparison (at Pretest)

	Program N=237	Comparison N=247	Sig. test
Affirmation	3.59	3.60	NS
Beh. Intention	3.46	3.51	NS
Future Impact	3.06	3.60	P=.055
Justification	3.59	3.60	NS
Abst. efficacy	3.83	3.82	NS

Initiation Rate Differences Among Various Subgroups
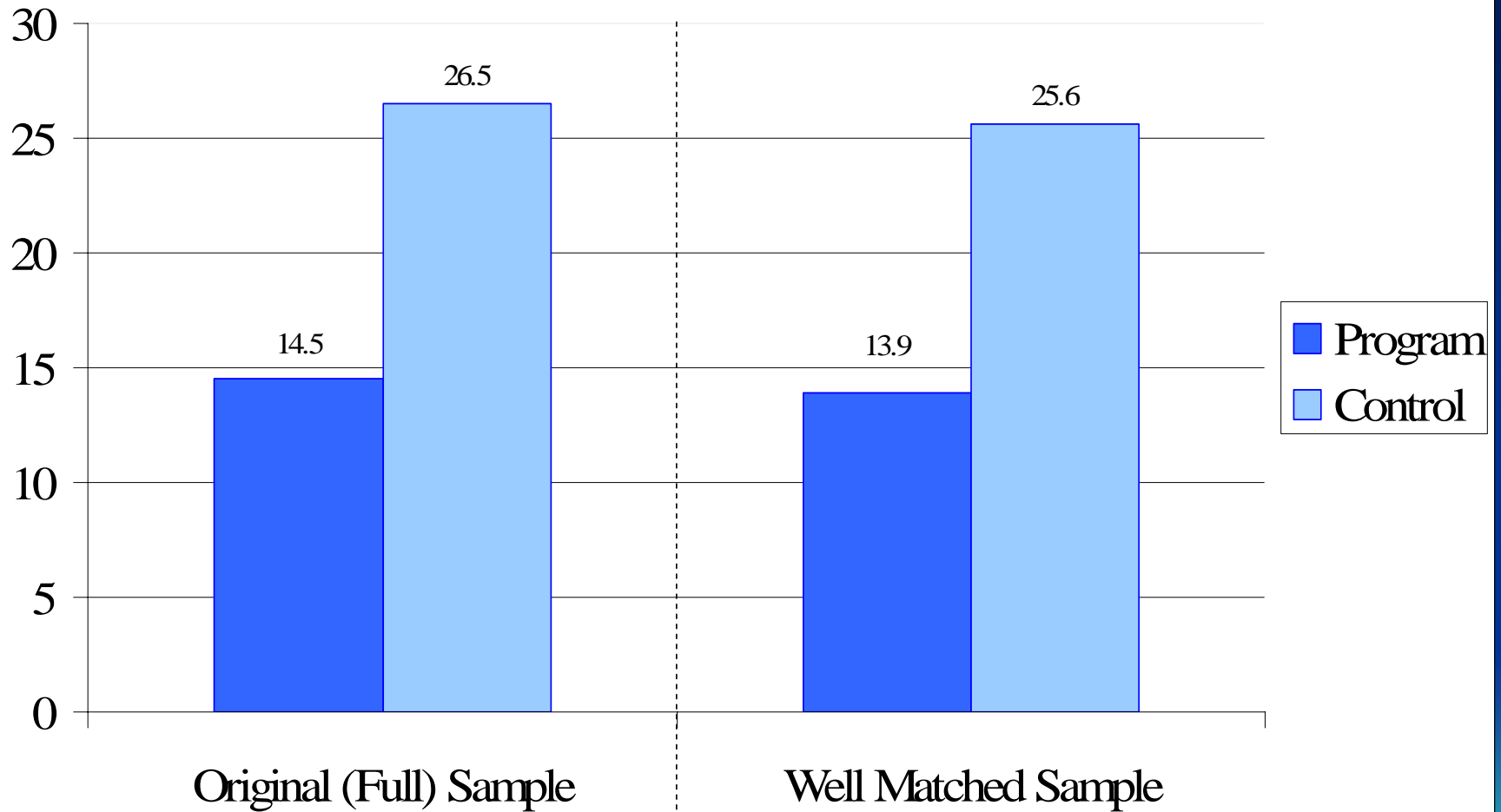
Identify the causal *mechanisms* and mediating factors that explain behavioral outcomes.

Generic Logic Model

| Program activities, events, curriculum, Etc. | → | ? ? ? | → | Reduce or Eliminate Sexual Activity | → | Reduced STDs and Pregnancy |

Program Model:

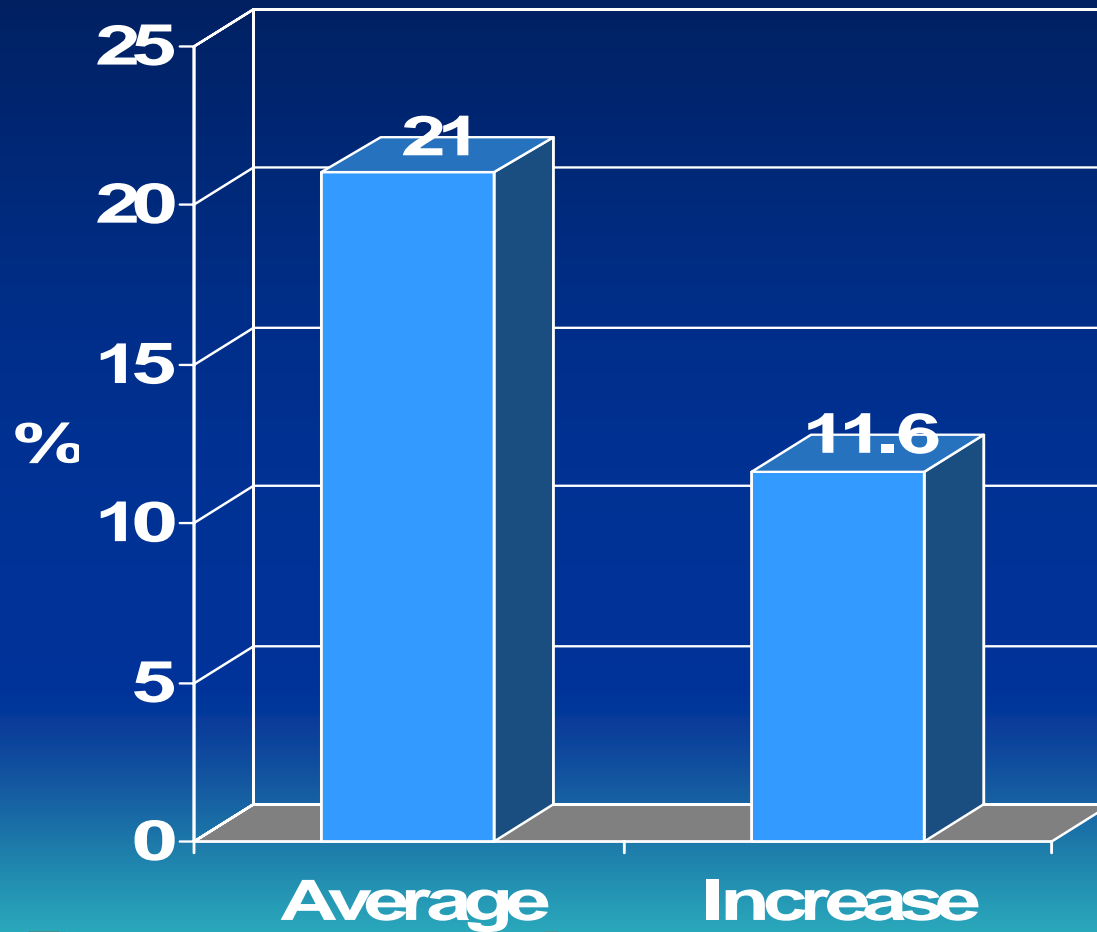Based on the premise that there are key "mediating" factors operating in an adolescent's life, which:

a) Have a direct and strong impact on their risk behavior

b) Are amenable to intervention and influence

c) Can be reliably measured

d) Are specifically targeted by the intervention

Prediction Model
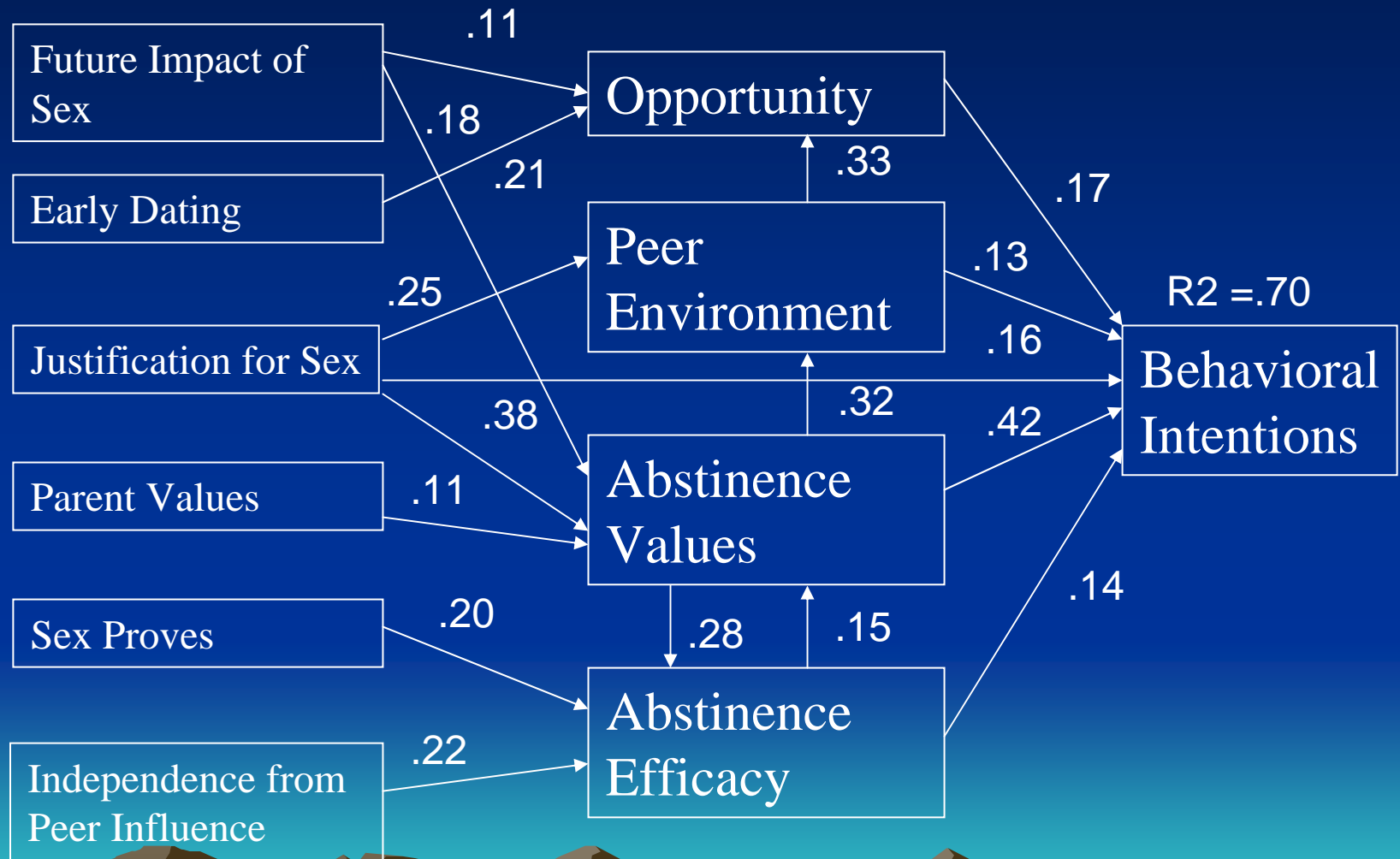
Behavioral Intentions Predicts Initiation of Sex of Virgin Youth

Predicting Initiation at 12mo. Follow-up

	df	B	SE	Exp(B)
8th vs 7th	1	-0.06	0.14	0.94
9th vs 7th	1	0.08	0.12	1.08
Race	1	0.38	0.17	1.46*
Gender	1	0.28	0.17	1.32
Repeat	1	0.79	0.19	2.19**
Beh. Intent (Pre)	1	-0.09	0.10	0.92
Beh. Intent (Post)	1	-0.60	0.10	0.55**
Constant	1	-1.57	0.11	0.21**

N=1,291

Total Variance in Behavioral Intentions

100%

Amount Explained by Demographics

1.4%

Amount Explained by Mediating Variables

62.7%

Definitions of Six Mediating Variables

- **Abstinence Values**: Importance of abstinence until marriage and its inclusion in their moral value system.

- **Abstinence Efficacy**: Confidence in ability to engage in refusal skills and avoid situations that could lead to sex.

- **Future Impact of Sex**: Perception that sex could interfere with goals regarding education, careers, marriage, and family life.

- **Independence from Peer Influence**: Ability to follow own value system and personal goals, and ability to communicate standards and values.

- **Justification for Sex**: Agreement with the rationalizing and justifying that students often engage in to legitimize their initiation into sexual activity.

- **Behavioral Intentions for Sex**: Level of intent and commitment to abstain from sexual activity.

In order to expect these mediating factors to impact behavior, three conditions need to be met:

1. The pre-post improvement must be significant

2. The pre-post improvement must occur on multiple mediators

3. The difference between program and control groups on the mediating variables must be sustained over time
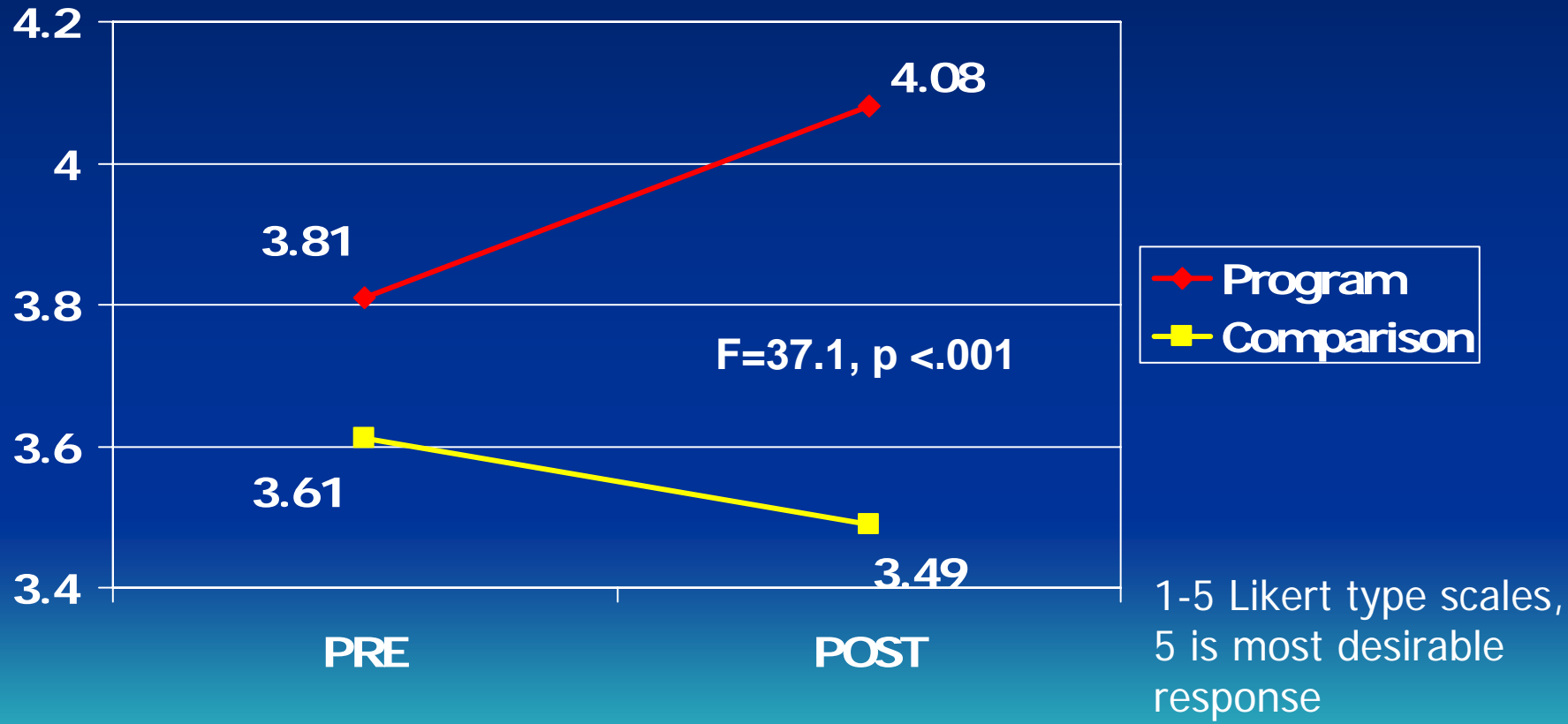
Abstinence Values
FIVE ITEMS IN SCALE, alpha = .91

- It is important to me to wait until marriage before having sex.

- I have a strong commitment to wait until marriage before having sex.

- It is against my values for me to have sexual intercourse while I am unmarried.

- Having sex before marriage is against my own personal standards of what is right and wrong.

- I have clear and definite ideas about why I should wait until marriage to have sex.

Pre-post comparison on *Affirmation of abstinence* scale

Chart values:

- Program: PRE 3.81, POST 4.08
- Comparison: PRE 3.61, POST 3.49

F=37.1, p <.001

Legend:
- Program (red)
- Comparison (yellow)

1-5 Likert type scales, 5 is most desirable response

Program Impact on Mediating Variables
Heritage Project – South Carolina
Pre-Post Change

Abstinence Values   ****

Justification for Sex   ****

Abstinence Efficacy   ****

Future Impact of Sex   ****

Sex Proves   ****

Marriage Context   ****

Behavioral Intention   ****

2003-2004

Mediating Variables Program vs. Control

| (N=998)	Main effect (treatment) *F value*		Main effect (control)		Treatment by Time (interaction)	
affirm (.90) **LB**	2.22 – 1.93 *87.49*	□□□□	2.71 – 2.69 *.53*	NS	F=27.86	□□□□
lovejus (.70) **HB**	3.03 – 3.23 *47.58*	□□□□	3.19 – 3.26 *4.34*	□	F=7.96	□□
futorie (.85) **HB**	2.58 – 2.20 *116.02*	□□□□	2.95 – 2.89 *2.03*	NS	F=31.65	□□□□
marcntx(.61) **LB**	2.01 – 1.75 *65.72*	□□□□	2.72 – 2.71 *.10*	NS	F=24.65	□□□□
perseff(.89) **HB**	2.44 – 2.03 *109.18*	□□□□	2.62 – 2.55 *2.28*	NS	F=33.05	□□□□
behav. inten (Next year) HB	3.39 – 3.59 *13.71*	□□□□	3.20 – 3.20 *.01*	NS	F=4.68	□

Spring 2002

Mediating Variables – Program vs. Comparison group

| N=1,281(prog) N= 254 (comp)	Pre-Post (F, P value)	Pre-Follow (F, P value)	Follow-up only
Abstinence values	37.1, ***	32.2, ***	64.6, ***
Behavioral Intention	25.1, ***	12.8, ***	24,8, ***
Future impact	26.9, ***	31.5, ***	67.0, ***
Justification for sex	40.4, ***	.66, NS	.72, NS
Abstinence Efficacy	25.6, ***	3.3, NS	8.9, **

$* = p<.05$, $** = p<.01$, $*** = p<.001$

Pre, post, & follow-up scores

Recall that the program group scored higher than the control group on mediating factors from pre-test to post-test (F=37.1, p<.001),
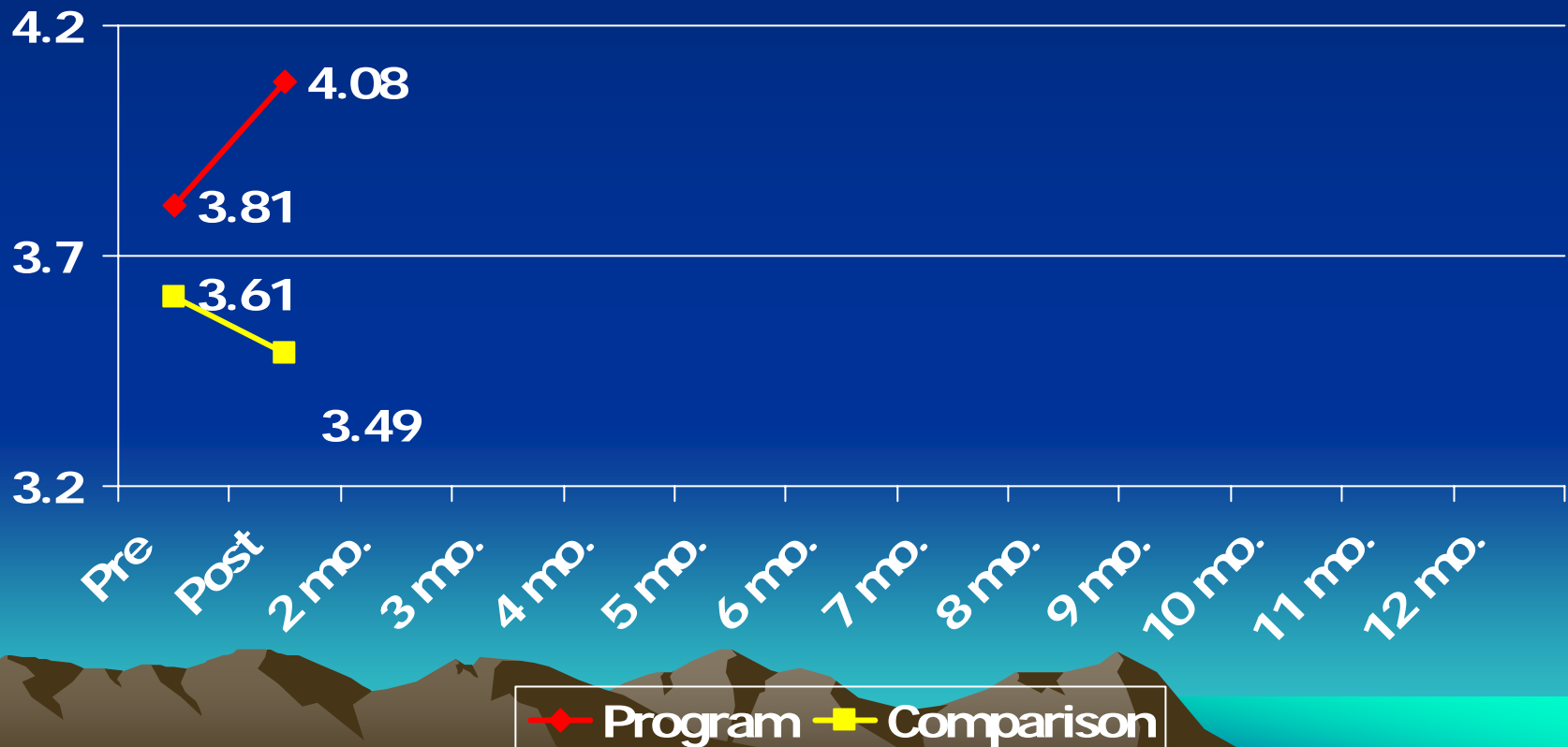
Pre, post, & follow-up scores

Scores in both groups deteriorate without further intervention by the 12 month follow-up. Program students still have better scores on mediating factors than the control students a year later (F=64.6, p<.001).
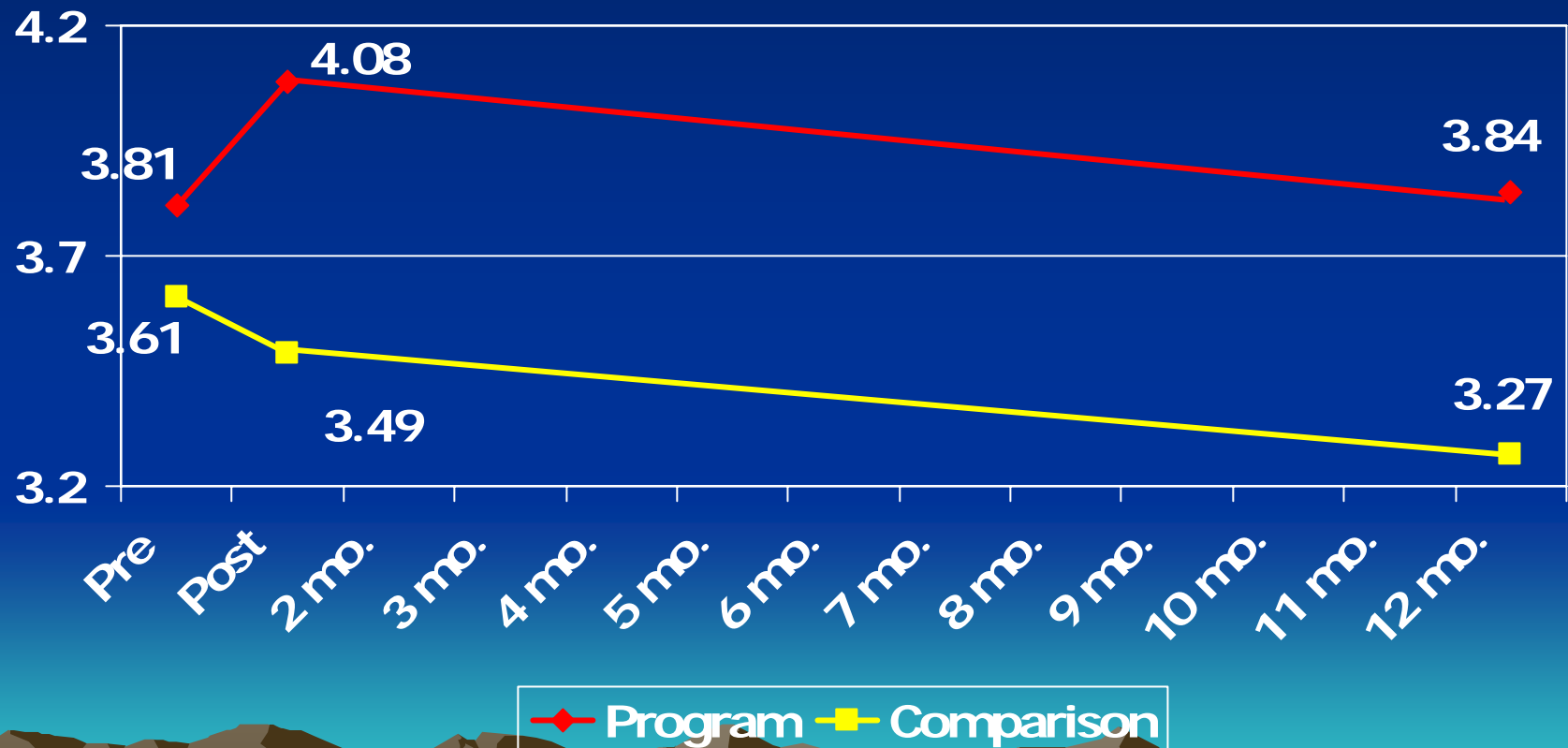
Measuring key mediator variables offers important program implications:

- Early detection of program potential is possible
- Program design is enhanced
- Teacher monitoring, feedback, and training is enhanced
- Explanation of behavioral outcomes (or lack thereof) is enhanced
- Causal inference about program impact is strengthened

Conclusion

- The results of this study suggest that a carefully developed abstinence-centered education program can lower the rate at which virgin youth initiate sex. The Heritage program produced a significant and substantial delay in sexual initiation 12 months after the intervention. In addition, a better understanding of the mechanisms that produced this change was realized by including hypothesized mediating factors in the program design and evaluation. These findings support the premise that primary prevention (risk avoidance) efforts to influence teens towards sexual abstinence are a viable strategy.