

STUDENTS TOGETHER AGAINST NEGATIVE DECISIONS (STAND): EVALUATION OF A SCHOOL-BASED SEXUAL RISK REDUCTION INTERVENTION IN THE RURAL SOUTH

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Twenty-one 10th graders selected as opinion leaders by their peers in a rural county in a southern state participated in a 36-hour peer-educator training program Students Together Against Negative Decisions (STAND) based on diffusion of innovations theory and the transtheoretical model. Comparison subjects received either a 22-hour leadership training course ($n = 20$) or no intervention ($n = 45$). STAND and comparison subjects completed a 154-item written knowledge, attitude, and behavior survey at the beginning of the training (Time 1), at the end of the training (Time 2), and again 8 months later (Time 3). One hundred and sixty-seven other 9th and 10th graders in the intervention county and 74 in the comparison county completed an abbreviated telephone interview at Time 1 and Time 3. At Time 3 STAND-trained peer educators reported significantly greater increases in AIDS Risk Behavior Knowledge (more than 4 times comparison groups), frequency of conversations with peers about birth control/condoms (+180% vs. +12%) and sexually transmitted diseases (STDs; +282% vs. -33%), condom use self efficacy (+16% vs. -1%), and consistent condom use (+28% vs. +15%). STAND teens also reported substantial favorable trends at Time 3, including increased condom use (+213% vs. +31%) and decreased unprotected intercourse (-30% vs. +29%). At Time 3 teens in the intervention county reported significantly greater increases in the number of people who talked with friends in the preceding 3 months about STDs (+39% vs. -19%) or with a parent/adult about sex (+6% vs. -37%). Intervention county teens also reported a substantial but nonsignificant 2.6-fold greater increase in condom use at last intercourse (+64% vs. +25%) but unfavorable changes in other risk behaviors. The STAND peer-educator training program appears to be an effective method for improving selected sexual knowledge, attitudes, and behaviors among participant teenagers in the rural South.

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Since 1993 AIDS has been the leading cause of death in the United States among men aged 25–44 and is currently the third-leading cause of death among women of this age group (Centers for Disease Control and Prevention [CDC], 1994; 1997). Although there are relatively few reported teenagers with full-blown AIDS because of the extended incubation period of HIV, the mean age at HIV infection has declined steadily over the last decade such that one in four new infections from 1987 to 1991 was in a person younger than 22 years of age (Rosenberg, Biggar, & Goedert, 1994). One in three young adults aged 18 to 27 infected in 1992 was infected by heterosexual contact (Rosenberg & Biggar, 1998). In the United States each year one in four sexually active teens contracts a sexually transmitted disease (STD; Donovan, 1993); two in five females become pregnant by age 20 (Alan Guttmacher Institute, 1995). In the most recently reported Youth Risk Behavior Survey (CDC, 1998), 61% of 12th graders reported having had sexual intercourse, and 21% reported having four or more lifetime sexual partners. Almost half of nonvirgin students (48%) reported not using a condom during their last sexual intercourse.

To address this problem, a number of primary prevention programs for teens have been developed in recent years. Only a small number of these programs have been adequately evaluated, however, including control/comparison groups and measurement of effects on sexual behavior or pregnancy rate (as opposed to behavioral intentions only). These programs have generally shown significant improvements in HIV knowledge and attitudes toward persons with AIDS or other attitudes and beliefs related to AIDS (Jemmott, Jemmott, & Fong, 1992; Kirby, Barth, Leland, & Fetro, 1991; Newman, DuRant, Ashworth, & Gaillard, 1993; Siegel, DiClemente, Durbin, Krasnovsky, & Saliba, 1995; Walter & Vaughan, 1993). Some programs have also resulted in changes in risk behaviors, including the delay of first sexual intercourse (Howard & McCabe, 1990; Kirby et al., 1991; St. Lawrence et al., 1995; Vincent, Clearie, & Schluchter, 1987), decreases in the number of sexual partners (Jemmott et al., 1992; Kirby et al., 1991; Main et al. 1994; Walter & Vaughan, 1993), decreases in the frequency of sexual intercourse (Jemmott et al., 1992, 1998; Smith, 1994), and increases in consistent condom use (Eisen, Zellman, & McAlister, 1990; Jemmott et al., 1992, 1998; Kirby et al., 1991; Main et al. 1994; St. Lawrence et al., 1995; Walter & Vaughan, 1993). Vincent and colleagues (1987) reported significant decreases in teen pregnancy.

Most of these studies have been implemented in urban centers outside the South. Of all these interventions, only two were school-based programs that both targeted rural students in the South and collected behavioral data. Neither of these interventions was successful in reducing sexual risk behaviors among sexually active teens, although one (Howard & McCabe, 1990) did result in a marked postponement of first intercourse. In addition, neither of these programs targeted high school students. A third school-based program (Vincent et al., 1987) in the South led to a decline in teen pregnancy rate, but the effectiveness of that program appears to have been largely due to the implementation of a school-based clinic that distributed contraceptives (which has since been closed) and to a particular school nurse (who has been reassigned). Pregnancy rates in this county have now returned to baseline (Paine-Andrews et al., 1996).

Providing effective sex and HIV/AIDS education programs is particularly crucial in southern states, which continue to report the highest rates of teen pregnancy (CDC, 1995), gonorrhea, and syphilis (CDC, 1996; Thomas, Kulik, & Schoenback, 1995) of any region of the nation, as well as an AIDS incidence rate higher than the national average (CDC, 1995).

AIDS rates in rural American communities are particularly troubling. Between 1989 and 1994 the rate of new AIDS cases in nonmetropolitan areas increased more than 3.5 times that in urban areas (69% vs. 19%; Thomas et al., 1995). AIDS prevention programs in rural areas also face a complex set of cultural barriers, including fear of AIDS, prejudice against infected individuals, ignorance, racism, homophobia, inadequate drug education, lack of access to health care, lack of resources and expertise, conservative moral and religious values and the concomitant real or perceived threat of controversy, increased demand for conformity, intolerance of diversity, a sense of isolation from the epidemic, and the fact that most individuals in a rural community are related and/or acquainted (Datema, 1995; Durant et al., 1992; Mondragon, Kirkman-Liff, & Schneller, 1991; Torabi, 1996). Designing explicit interventions that focus on both sexual abstinence and risk reduction, which are sensitive issues in this culture, is a challenging task. AIDS education in areas that are both rural and southern is therefore doubly challenging but imperative as evidenced by the fact that 56% of all AIDS cases reported in rural areas through 1992 were in the South (Thomas et al., 1995).

One of the more promising theories employed recently in the design of behavioral interventions is the diffusion of innovations (DOI) model (Rogers, 1995). A basic premise of the DOI model is that the most effective communicators for introducing a behavioral change in a community are opinion leaders drawn from within the target community. In this model opinion leaders are individuals who have the greatest influence on other individuals' attitudes or overt behavior relevant to the innovation (such as condom use). DOI theory also maintains that an innovation is more likely to be adopted if it is presented as high in relative advantage, trialability, compatibility, and observability but low complexity. Kelly St. Lawrence, and others employed the DOI model in the design of an AIDS/HIV risk reduction program that resulted in substantial decreases in risk behaviors such as unprotected anal intercourse, as well as increases in perceived social norms condoning safer sex and precautionary behaviors in gay communities in three southern cities (Kelly et al., 1991; Kelly et al., 1992). DOI also served as the theoretical foundation of a successful prevention program that led to significant decreases in unprotected anal intercourse among gay teens in a midsized community in Oregon (Kegeles, Hayes, & Coates, 1996). To date, however, DOI theory has not been employed in the design of interventions targeting the broader teen population.

Another promising behavior change theory is the transtheoretical (TT) model of change (Prochaska & DiClemente, 1983, 1992; Prochaska, Redding, Harlow, Rossi, & Velicer, 1994). According to the TT model, (a) behavioral change is more a continuous process or passage through a series of stages than a dichotomous event, (b) certain processes used by individuals to facilitate change are more effective at one stage of change than another, and (c) behavioral interventions are likely to be successful only if the timing of instruction about each process is matched to the stage of change of the target individuals (Grimley, Prochaska, Velicer, & Prochaska, 1995; Winnett et al., 1995). Studies of a wide range of behaviors from smoking cessation to diet change and exercise adoption have revealed two key TT model constructs: the five stages of change (precontemplation, contemplation, preparation, action, and maintenance) and the 10 processes that can be employed to facilitate change (consciousness raising, self-reevaluation, self-liberation, counterconditioning, stimulus control, reinforcement management, helping relationships, dramatic relief, environmental reevaluation, and social liberation) (c.f., McConaughy, Prochaska, & Velicer, 1983;

Prochaska, Velicer, DiClemente, & Fava, 1988; Prochaska, Redding, et al., 1994). The TT model has been used as the theoretical foundation for the CDC's five national AIDS Community Demonstration Projects (O'Reilly & Higgins, 1991; O'Reilly et al., 1992) as well as for several nonintervention studies (CDC, 1991; CDC, 1993; Grimley et al., 1995; Prochaska, Velicer, et al., 1994), but only limited outcome data have been published to date. Although promising, the TT model has not yet been employed as the foundation of an intervention targeting sexual behavior among teens. (For excellent reviews of these theories and their application to the design of HIV prevention interventions see Grimley, DiClemente, Prochaska, & Prochaska, 1995; Prochaska, Redding, et al., 1994; Valdiserri, West, Moore, Darrow, & Hinman, 1992; Winett et al., 1995).

We report here on a pilot study of a sexual risk reduction intervention called STAND (Students Together Against Negative Decisions) targeting 10th graders in a rural southern state. This intervention is based on a theoretical foundation that integrates both DOI and TTM. We hypothesized that this intervention would promote the delay of first intercourse among virgin trainees, reduce sexual risk taking behaviors among nonvirgin trainees, and lead to an increased frequency of informal communication about HIV/STDs and birth control. We also report on a concurrent telephone interview study comparing nontrainee students in the intervention and control counties. We hypothesized that nontrainee students in the intervention county would show similar effects on these variables when compared to their peers in the intervention county, although we expected the magnitude of these effects to be smaller.

METHODS

STUDY SETTING

Selected characteristics of the two study counties are compared in Table 1. The study intervention was implemented in County I, an agricultural and mining community located in a rural region of a southern state. County C is located approximately 50 miles away and was selected as the comparison county on the basis of similar demographics and geography, willingness to participate, and the fact that a leadership training for student leaders that could serve as a comparison group was being initiated coincident with this study. Middle school students in both counties participate in a modest family life curriculum; high school students are required to enroll in a health class which includes a traditional unit on sex education, including basic information on AIDS and other STDs. No changes in these programs or youth services or other events likely to affect sexual risk behavior occurred in either county during the course of this study.

PROCEDURES

STAND: The Risk Reduction Intervention

Students participated in 36 hours of instruction after school over a 4-month period. Students met once at the beginning of the intervention for a 5-hour group of team-building exercises and twice weekly for a hour thereafter. The primary cofacilitators for the course were a Ph.D. AIDS education specialist and a local middle school counselor with 8 years of experience as a family life instructor (and well known to all the STAND students). Two college student interns, who received approximately 4

Table 1. Selected Characteristics of the Intervention (STAND) and Comparison Counties

	County I (STAND)	County C (Comparison)
Population (1995)	19,112	15,326
% African American	48	35
% European American	52	64
% Other	< 1	1
Per capita income (1992)	\$16,392	\$14,082
% Children under age 18 in poverty (1989)	26	22
% Female-headed households with children under age 18 (1990)	10	7
% Land in farms (1992)	24	26
Teen pregnancy (1989–1993) ^a	55.3	67.2

Note. Data are from Georgia Department of Human Resources, Division of Public Health, 1997; *Georgia County Snapshots*, Georgia Department of Community Affairs, 1996; and 1990 Census of Population and Housing, U.S. Department of Commerce, 1992.

aNumber per 100,000 same-aged females, 1989–1993.

hours of training, assisted primarily by leading small-group discussions. (In subsequent years this role is performed by students from the preceding STAND classes.)

The program, designed by the authors and a panel of national experts, had two primary aims: abstinence and reduction of risk for those who do not abstain. The program sought to reduce sexual risk taking among the peer-educator trainees and to encourage these teens to influence their peers so as to change the cultural norms of their community to decrease the social acceptability of sexual risk taking. Instruction included games, simulations, role-plays, minilectures, video clips, small group discussion, skills practice with verbal feedback and coaching, contraceptive demonstrations, a visit to the local health department, locating contraception in local stores, calling a national hotline, an anonymous question box, visits from an AIDS specialist physician and a public health nurse, and optional parent/teen activities. The course was student centered, focusing on fun, openness, active learning, teen empowerment, mutual support of risk reduction commitments (abstinence or consistent condom use), and skills building (including communication, negotiation, refusal, assertiveness, and contraceptive use). Course topics were sequenced so as to employ processes appropriate to an assumed student progression from TT precontemplation or contemplation stages to action or maintenance stage during the training period. Throughout the curriculum, behavior changes such as the adoption of consistent condom use were presented as high in relative advantage, trialability, simplicity, and compatibility—constructs identified by DOI theory as likely to enhance adoption. Also in keeping with DOI theory, teens identified as opinion leaders by their peers are selected to participate in STAND, and their power to make risk reduction an acceptable sexual norm among their peer group by serving as positive role models, sharing personal experiences about risk reduction behaviors they have already adopted, is emphasized throughout the course. (A copy of the curriculum is available from the corresponding author.) All study procedures were approved by the institutional review board of Mercer University and the boards of education in Counties I and C.

Teens were paid \$4.85 per hour of training. To encourage attendance further, the money that would have been paid to a student if she or he had not been absent for a session was divided equally among those students attending that session. An average of 81% of the students attended each session.

Table 2. Selected Characteristics of Study Participants

	Intervention Study				Diffusion Study			
	STAND		Comparison Groups		County I (STAND)		County C (Comparison)	
	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)
Total sample	21	(100)	53	(100)	167	(20.2) ^a	74	(11.0) ^a
Age (mean) ^b		15.8 ¹		15.6 ¹		15.4 ¹		15.0 ²
Race								
African American	15	(71)	28	(53)	124	(74)	31	(42)
White, Non-Hispanic	6	(29)	23	(43)	43	(26)	43	(58)
Other	0	(0)	2	(4)	0	(0)	0	(0)
Gender								
Male	10	(48)	27	(51)	71	(43)	26	(35)
Female	11	(52)	26	(49)	96	(57)	48	(65)
Grade ^b								
9th	0	(0)	10	(19)	92	(55)	44	(59)
10th	21	(100)	40	(75)	75	(45)	30	(41)
11th	0	(0)	3	(6)	0	(0)	0	(0)

Note. Within rows, means with different number superscripts differ at $\alpha = .05$.

^aPercentage of all 9th and 10th graders in that county.

^bAt first interview.

Selection of Teen Peer Educators

In keeping with DOI, 42 opinion leaders at County I high school were identified as those individuals most often named in an anonymous survey of all 10th graders as the students in their class that they would "ask for advice about sex or birth control because you think they would give you good advice" or the person they would "trust enough to talk with about your personal sexual thoughts, feelings, and behaviors." Students also completed a roster study in which they identified individuals whom they "talk to every day or two." These data were analyzed by UCINET IV (Borgatti, Everett, & Freeman, 1992) to identify social cliques.¹ From the 28 invitees who returned consent forms signed by both the teen and a parent or guardian, a final group of 24 students was selected to participate, balanced for gender and race to reflect the school. Three of these students were unable to participate (primarily because of work schedule conflicts), resulting in a final STAND training group of 21 teens. This group included at least one individual from each of the 460 identified (overlapping) cliques and two or more individuals from 98% of the cliques. Demographic characteristics of these students are presented in Table 2.

Comparison Subjects

The 21 invited teens from County I who did not participate constituted a no-treatment, same-county comparison group. A group of 24 10th-grade opinion leaders at County C High School who were identified using the same procedures used to select opinion leaders in County I constituted a second comparison group. Twenty two of these students provided usable presurvey and postsurvey data. An additional comparison group in County C consisted of 20 students who participated in the first class of a youth leadership training program organized and conducted by the chamber of com-

¹This program implements the Bron and Kerbosch (1973) algorithm to find all Luce and Perry (1949) cliques greater than a specified size. This procedure groups respondents into cliques of individuals that are most often named together by respondents in the roster study.

merce in County C. Students for this program were selected from among volunteers on the basis of leadership experience and letters of support from school counselors and/or teachers. The 22-hour leadership program consisted of five sessions spaced over a period of 3 months. This leadership training focused on leadership, understanding self and others, communication, team building, decision making, and community involvement. All youth leadership trainees completed the study surveys. Students in all three comparison groups received no additional interventions other than their normal high school course of study.

Demographic characteristics of the comparison students are also presented in Table 2. Collectively, the participants included 37 males and 37 females ($N_{\text{STAND}} = 21$, $N_{\text{YL}} = 15$, $N_{\text{County I}} = 16$, $N_{\text{County C}} = 22$) ranging in age from 14 to 17 years ($M = 15.6$, $SD = 0.81$).² Fewer students in the Youth Leadership group reported that they had engaged in sexual intercourse (13.3%) as opposed to students in either STAND (66.7%) or the two no-treatment comparison groups (County I: 87.5%; County C: 77.3%), $p < .001$. Scores of the Youth Leadership students on the Health Protection Communication Scale ($M_{\text{YL}} = 1.58$) were also lower than those of students in STAND ($M_{\text{STAND}} = 3.02$) or the no-treatment comparison groups ($M_{\text{County I}} = 2.62$ and $M_{\text{County C}} = 2.47$), $p = .01$, that is, the less sexually experienced Youth Leadership students discussed sexual practices less often with their partners or dates. There were no significant differences among groups on any other variables measured on the preintervention survey.

DATA COLLECTION

Intervention Study

STAND students completed the preintervention written survey in two parts during the first two class sessions (Time 1). Subjects in all three comparison groups completed the combined (but otherwise identical) survey in separate large group sessions during the same 2-week period. Postintervention surveys were completed by the students four months later during the final training session (Time 2); comparison subjects completed the identical surveys within the following 10 days. All subjects were asked to mark their forms with a unique personal identifier (such as their mother's maiden name) to permit matching surveys over time while maintaining anonymity. STAND members also completed four formative evaluations of the training activities throughout the training period and participated in individual interviews at the end of the training.³ All intervention and comparison subjects completed an identical survey 12 months after the study began (Time 3).

Diffusion Study

A separate sample of students drawn from all 9th and 10th graders enrolled in each of the two counties was interviewed by telephone by an independent research firm before the study began and again 12 months later. Active parental consent (required by the school administration) was sought in a form given to all 9th and 10th graders, in

²One additional student—a black female—joined STAND at the third session and thus did not complete the preintervention survey. Her data are not included in these analyses. As anticipated, students in the Youth Leadership (YL) training group which included 10 ninth graders were significantly younger ($M = 15.0$) than students in the other groups ($M = 15.7$), $p = .007$.

³Summaries are available from the corresponding author.

Table 3. Telephone Interview Response Rates: Diffusion Study

	County I		County C	
	<i>n</i>	(%)	<i>n</i>	(%)
Population (9th and 10th graders)	617		517	
Parent gave permission	302	(48.9)	189	(36.6)
Parent refused permission	123	(19.9)	124	(24.0)
Interview completed				
Preintervention	229	(75.8) ^a	102	(82.3) ^a
12-month follow-up	167	(72.9) ^b	74	(72.5) ^b

Note. ^aPercentage of all students whose parents gave permission to participate.

^bPercentage of students completing preintervention interview.

two follow-up letters mailed directly to the nonrespondent parents, and in up to four attempts to contact by telephone those parents who had not responded to the two written requests. At least four attempts were made to contact every student who provided parental consent. Interviewers were matched to subjects by race and gender, but the interviews were anonymous (names were not provided to the interviewers). Response rates for each county are presented in Table 3. Preintervention differences between respondents in the two counties were not statistically significant except for perceived norms toward abstinence ($M_{\text{County I}} = 2.79$ and $M_{\text{County C}} = 3.05$), $p = .04$).

MEASURES

Warm-Up

The first four items were general health questions (seat belt and tobacco use, etc.).

Sexual Behavior and Medical History

Nine items assessed student sexual behavior and history. In addition, students completed a series of branching questions used to assess the TT stage of each person on (a) initiating sexual intercourse (virgins only), (b) returning to abstinence (nonvirgins only), (c) using condoms consistently for vaginal intercourse (nonvirgins only), and (d) using condoms consistently for anal intercourse (nonvirgins only). Stages were assigned as follows: precontemplation—individuals who had not made a decision to engage in the behavior and did not expect to within the next 6 months; contemplation—those who expected to make a decision about engaging in the behavior within the next 30 days; action—those who had made a decision about the behavior less than 6 months ago; maintenance—those who had made the decision 6 months ago or more.

Knowledge, Communication, Attitudes, and Belief Scales

The written surveys included eight locally constructed items measuring respondent familiarity with the STAND program and how often he or she had talked with friends and adults about birth control and condoms, STDs, and other sexual issues; a 24-item version of the AIDS Risk Behavior Knowledge Test (Kelly, St. Lawrence, Hood, & Brasfield, 1989); the 6-item Dyadic Sexual Communication Scale (Catania et al., 1992; Peterson et al., 1992); the eight-item Health Protective Communication Scale (Peterson, Catania, Dolcini, & Faigles, 1993); the 15-item HIV Prevention Attitude Scale (Form B; Torabi & Yarber, 1992); the 23-item Condom Attitude Scale (adolescent version; St. Lawrence et al., 1994); the 9-item Condom Use Self Efficacy Scale

Table 4. Reliability Coefficients of Study Measures

Measure	Coefficient alpha			
	Written Survey		Telephone Interview	
	Pre	Post	Pre	Post
AIDS Risk Behavior Knowledge Test	.70	.72	.56	.45
Dyadic Sexual Communication Scale ^a	.68	.68	—	—
Health Protective Communication Scale ^a	.88	.86	—	—
HIV Prevention Attitude Scale (Form B)	.64	.70	.43	.29
Condom Attitude Scale (Adolescent Version)	.78	.86	.65	.64
Self Efficacy				
Refusal Skills	.84	.85	—	—
Condom Use ^a	.62	.65	—	—
Perceived Norms				
Condom Use	.62	.65	.64	.65

Note. ^aIncluded in the written survey only.

(Brafmenford & Beck, 1991); a 9-item scale assessing perceived norms among friends toward abstinence (3 items), condom use (3 items) (Peterson et al., 1993), drug/alcohol use during sex (1 item), multiple partners (1 item), and risk reduction in general (1 item); and a 7-item refusal skill self-efficacy scale (constructed for this project from the Condom Use Self Efficacy Scale). The telephone interviews included abbreviated versions of the AIDS Risk Behavior Knowledge Test (8 items), HIV Prevention Attitude Scale (2 items), and the Condom Attitude Scale (8 items) and omitted the Dyadic Sexual Communication Scale, the Health Protective Communication Scale, and the self-efficacy measures. The reliability coefficients for all measures are shown in Table 4 are generally acceptable (Cronbach's alphas above .60) with the exception of the telephone survey AIDS Risk Behavior Knowledge Test and the HIV Prevention Attitude Scale, both of which have questionable reliability most likely as a function of the reduced number of items included in the telephone interview.

RESULTS

The data obtained were analyzed by both descriptive and inferential statistics. A 2×3 (STAND vs. comparison \times Time 1, 2, 3) repeated measures analysis of variance (ANOVA) was used for all continuous variables; 2 (Time 1) \times 2 (Time 2) \times 2 (Time 3) chi-square analyses were employed for all dichotomous variables. For the purposes of this pilot study, the three comparison groups were combined for analysis.

INTERVENTION STUDY

Communication with Peers, Adults, and Partners

At Time 3, 100% of STAND members reported talking at least once with friends in the preceding 3 months both about birth control/condoms and about STDs versus 78% and 73%, respectively, for comparison subjects. Most STAND members (85%) also reported talking at least once with a parent or other adult about sexual issues during that time period (comparison: 60%). At Time 3 STAND teens reported speaking with friends about birth control/condoms and STDs 17.2 times and 16.8 times, respectively; comparison teens reported speaking to peers

about birth control/condoms an average of 3 times and about STDs 2.8 times. Two-way ANOVA revealed significant time by treatment interactions for both variables ($p_{bc/condom} < .01$; $p_{STD} < .01$).⁴ STAND teens also reported modest increases in the frequency of conversations with parents or other adults (+6.8%)⁵ at Time 3 while comparison teens reported a modest decrease (-6.1%) ($p = .67$). Scores of STAND members who were currently "seeing or dating someone" reported a mean 8.8% increase on the Dyadic Sexual Communication Scale versus a 1.0% increase among comparison subjects, $p = .211$ (see Table 5). The mean Health Protective Communication Scale score among STAND members (who were currently "seeing or dating someone") decreased 20.3% by Time 3 (comparison subjects +4%), but this time by treatment interaction was not significant, $p = .15$.

Knowledge, Attitudes, and Beliefs

The mean Risk Behavior Knowledge Scale score of STAND members increased 9.1% at Time 2 and another 5.7% at Time 3, a 15.4% total increase from Time 1; comparison teens had more modest gains (3.5% from Time 1 to Time 3), $p = .02$ (see Table 5). There was also a modest but significant increase of 5% in the mean HIV Prevention Attitude Scale score among STAND members from Time 2 to Time 3 ($p = .05$), while comparison subjects reported a non-significant decrease of 2.0%. Time 1 to Time 3 changes were not statistically significant for either group. Condom Attitude Scale scores remained essentially unchanged in both groups.

Condom use self efficacy among STAND members showed a 8.2% and an additional 7.3% increase at Times 2 and 3, respectively, a 16.1% increase from Time 1 to Time 3 (vs. a total decrease of 1.2% among comparison subjects). The time by treatment interaction was significant, $p < .01$. At Time 3 STAND members reported a 5% improvement in refusal skill self-efficacy versus a 4% decrease among comparison subjects; the time by treatment interaction was not statistically significant, $p = .32$.

STAND members reported a small increase in perceived norms favoring condom use among their peers over the study period (+2.2%) while comparison subjects reported a small decrease (-2.1%). The time by treatment interaction was not significant, $p = .387$.

Perceived norms favoring abstinence decreased over the study period for both groups (STAND: -10.2%; Comparison -8.7%); the time by treatment interaction was not significant, $p = 0.74$.

Behavior

Five of the 21 students (24%) in the comparison groups who were virgins at pretest but none of the 7 virgin STAND students reported that they had initiated intercourse by Time 2 (see Table 6). By Time 3, two STAND members (29% of virgins) and seven comparison subjects (33%) reported sexual debut.

At Time 2, 77% of the sexually active STAND members reporting currently using a condom for every act of intercourse (a 54% increase over pretest) versus 47% of comparison students (an 18% increase). At Time 3 consistent condom use among STAND members was still up 28% over pretest; comparison subject use had increased about

⁴ All inferential statistical analyses assume that each group of study subjects is representative of a larger population of same-aged teens.

⁵ All percentage change values are computed as a proportion of the pretest value.

Table 5. Means for Nonbehavioral Variables, STAND Trainees versus Comparison Groups: Intervention Study (Written Survey)

Variable	STAND				Comparison Groups			
	n ^a	Pre Mean	Post-1 Mean	Post-8 Mean	n ^a	Pre Mean	Post-1 Mean	Post-8 Mean
Dyadic Sexual Communication ^b	11	4.21	4.20	4.58	27	4.02	4.11	4.06
Health Protective Communication	19	2.91	2.72	2.18	43	2.36	2.55	2.01
AIDS Risk Behavior Knowledge	15	18.27 ¹	19.93 ¹	21.07 ²	44	18.34 ¹	19.23 ¹	18.98 ¹
HIV Prevention Attitudes	15	4.30 ¹	4.18 ¹	4.40 ²	44	4.27 ¹	4.25 ¹	4.19 ¹
Condom Attitudes	14	4.25	4.34	4.28	44	4.22	4.26	4.22
Self Efficacy								
Condom Use	18	3.80 ¹	4.11 ^{1,2}	4.41 ²	42	4.18 ^{1,2}	4.17 ^{1,2}	4.13 ^{1,2}
Refusal Skills	18	3.45	3.49	3.61	48	3.34	3.16	3.30
Perceived norms								
Condom use	16	3.71	3.69	3.79	49	3.78	3.66	3.70
Abstinence	18	2.85	2.61	2.56	48	2.87	2.70	2.62

Note. Within rows, means with different number superscripts differ at alpha = .05.

^aNumber of individuals who provided preintervention and postintervention data.

^bCompleted only by individuals who were currently "seeing or dating someone."

Table 6. Prevalence and Means of Sexual Behaviors, STAND Trainees versus Comparison Groups: Intervention Study (Written Survey)

Variable	STAND			Comparison Groups		
	Pre	Post-1	Post-8	Pre	Post-1	Post-8
Nonvirgins (n[%])	14 (67)	14 (67)	16 (76)	32 (60)	37 (70)	39 (74)
Initiated intercourse (n[%]) ^a	—	0 (0)	2 (29)	—	5 (24)	7 (33)
Consistent condom user (n[%]) ^b	7 (50)	10 (77)	9 (64)	12 (40)	15 (47)	(16 46)
Used condom at last intercourse (n[%])	9 (65)	11 (79)	11 (73)	21 (66)	23 (61)	27 (75)
No. of acts of intercourse (M) ^c	5.3	5.5	15.1	5.1	5.8	7.9
No. of acts of unprotected intercourse (M)	1.3	0.1	2.6	1.6	3.4	3.2
No. of acts of intercourse with condom (M) ^c	4.0	5.4	12.5	3.6	2.4	4.7
Reporting a new sexual partner (n[%]) ^{a,b}	—	2 (22)	8 (80)	—	14 (48)	21 (68)
Involved in a pregnancy (n[%]) ^{a,b}	—	2 (14)	3 (25)	—	1 (4)	2 (6)
Diagnosed with STD (n[%]) ^{a,b}	—	0 (0) ¹	0 (0) ¹	—	1 (4) ¹	2 (7) ²
Used alcohol/drugs at last intercourse (n[%]) ^b	0 (0)	1 8	0 (0)	1 (3)	2 (6)	1 (3)
Progressing in TTM stage (n[%]) ^{a,d}	—	0 (0)	1 (100)	—	4 (80)	3 (75)
RE: remaining abstinent ^e	—	4 (50)	6 (86)	—	8 (62)	9 (90)
RE: returning to abstinence ^b	—	6 (100) ¹	4 (67) ^{1,2}	—	5 (33) ²	8 (53) ²
RE: consistent condom use	—	—	—	—	—	—

Note. Within rows, means with different superscripts differ at alpha = .05.

^aSince pretest.

^bAmong all nonvirgins who provided usable data.

^cIn the preceding 3 months.

^dAmong all individuals providing usable data and who could progress (i.e., were at action stage or below).

^eAmong all respondents providing usable data who reported being virgins at pretest.

half that amount (15%). Of the six STAND members who reported less than consistent condom use at Time 1, half were using condoms consistently at Time 3; only two of the six STAND members consistently using condoms at Time 1 (33%) reported less than consistent condom use at Time 3. Among comparison subjects, only 19% of nonconsistent condom users at Time 1 were consistent users at Time 3; 45% of consistent condom users at pretest were not consistent users at Time 3. The three-way Time \times Treatment interaction was significant, $p = .05$. The proportion of STAND members who reported condom use at last intercourse increased 22% from Time 1 (65%) to Time 2 (79%) versus an 8% decrease among comparison subjects (Time 1: 66%; Time 2: 61%); at Time 3, however, the two groups reported similar frequencies of condom use at last intercourse (STAND: 73%, Comparison: 75%), $p = .93$.

Over the 12-month study period STAND members reported a larger increase in the number of condom-protected acts in the preceding three months (STAND: 212.5%; Comparison: 30.6%), and the two groups reported similar increases in reported use of condoms at last intercourse (STAND: +12%; Comparison: +13.6%). STAND members reported an undesirable mean increase of 9.8 total acts of intercourse in the 3 months preceding Time 3; comparison subjects reported an increase of 2.8 acts. None of these three differences between groups was statistically significant, however.

At Time 2 nonvirgin STAND members reported a more than 10-fold decrease in the number of non-condom-protected acts of intercourse in the preceding 3 months (Time 1: 1.3; Time 2: 0.1), while the frequency of unprotected intercourse more than doubled among comparison subjects (from 1.6 to 3.4). At Time 3 the frequency of unprotected intercourse among STAND members had increased but was still 19% below that frequency for comparison subjects although the time by treatment interaction was not statistically significant, $p = .34$. Thus, only 2% and 17% of all intercourse by STAND members at Time 2 and Time 3, respectively, was non-condom-protected as opposed to 59% and 41% among comparison subjects.

Three male STAND members (25% of the nonvirgins reporting) and no females reported being involved in a pregnancy; one female and two males (6%) among the comparison subjects reported a pregnancy. No STAND members reported being diagnosed with an STD during the study period compared to 7% of sexually active comparison subjects, $p < .01$.

Alcohol and other drug use in conjunction with intercourse was not frequently reported (see Table 6). No STAND member reported engaging in anal intercourse during the preceding 3 months at Time 1, 2, or 3. Three comparison subjects reported anal intercourse before the study began; four other comparison subjects (11% of nonvirgins) had initiated anal intercourse by Time 3 (total 7 or 18%). Of these seven, 4 (57%) reported engaging in unprotected anal intercourse one or more times.

DECISION STAGING

Only small numbers of students in both groups were not already at the maintenance stage for all three decisions for which Transtheoretical staging was assessed. Among these respondents, at Time 2 all six sexually active STAND members advanced in the decision process regarding consistent use of condoms versus 33% of the equivalent subset of comparison subjects, $p = 0.02$. At Time 3 the proportion of progressors on this decision was not significantly different between the two groups although the absolute difference still favored the intervention subjects (STAND: 67%; Comparison:

Table 7. Means for Nonbehavioral Variables, by County: Diffusion Study (Telephone Interviews)

Variable	<i>n</i> ^a	County I (STAND)		<i>n</i> ^a	County C (Comparison)	
		Pre Mean	Post Mean		Pre Mean	Post Mean
AIDS Risk Behavior Knowledge	167	5.79	6.08	74	6.26	6.53
HIV Prevention Attitudes	167	4.27	4.18	74	4.32	4.31
Condom Attitudes	167	3.88	3.87	74	3.99	3.97
Perceived norms						
Abstinence	167	2.79 ¹	2.83 ¹	74	3.05 ²	3.18 ²
Condom use	166	3.59	3.56	73	3.51	3.60

Note. Within rows means with different number superscripts differ at alpha = .05.

^aNumber of individuals who provided preintervention and postintervention data.

53%). On the decisions whether to remain abstinent (virgins only) and whether to return to abstinence after sexual debut, large proportions of subjects in both groups (who were not already at maintenance at pretest) progressed (see Table 6), but there were no significant differences between the two groups on these variables. Only two students in the entire study (both comparison subjects) reported a decision to return to abstinence.

DIFFUSION STUDY: DISCUSSIONS WITH PEERS AND ADULTS

Twelve months after the program began, 83.8% of the 9th- and 10th-grade students interviewed by telephone in County I had heard of the STAND program versus 19.2% of those interviewed in County C, $p = .01$. The proportion of respondents in County I who had talked with friends in the preceding three months about STDs increased 39.3% from pretest (45.6%) to posttest (63.5%) while that proportion decreased 18.8% in County C (Time 1: 54.9%; Time 2: 44.6%). The difference between the two groups was significant, $p < .01$. The mean frequency of such conversations also increased 16.0% in County I (Time 1: 2.38; Time 2: 2.76) and decreased 35.0% in County C (Time 1: 3.54; Time 2: 2.30) although this difference was not statistically significant ($p = .169$). There was a 6% increase in the proportion of County I respondents who reported talking with a parent or other adult about a sexual issue, which was statistically different from the 36.6% decrease reported in County C, $p < .01$. Both groups reported decreases in the frequency of such conversations with adults, with the absolute difference favoring County I (County I: 31.4%; County C: 37.5%), but the difference between groups was not significant, $p = .78$. In contrast, there was a significant difference between groups in the proportion of respondents who talked with friends about birth control/condoms at posttest compared to pretest favoring County C (County I: 5.0%; County C: +36.0%), $p < .01$. Changes in the frequency of such conversations followed a similar pattern but were not statistically significant (County I: 8.8%; County C: +16.2%).

KNOWLEDGE, ATTITUDES, AND BELIEFS

Respondents in both counties reported a modest increase in Risk Behavior Knowledge Scale score (County I: +5.0%; County C: +4.3%), and the difference between the two groups was not significant (Table 7). Changes in HIV Prevention Attitude and Condom Attitude Scale scores were 2% or less in both counties with no significant differences between groups. Similarly, no statistically significant differences were noted

over time for either group for perceived norms toward abstinence and condom use (see Table 7.)

BEHAVIOR

Among those who reported being virgins at pretest, similar proportions of respondents in each county reported sexual debut (County I: 23.8%; County C: 20.4%), $p = .59$ (Table 8). In County I there was a 64% increase in the proportion of sexually active respondents who reported condom use at last intercourse compared with a 25% increase in County C, $p = .53$, but there was a 12% decrease in sexually active County I respondents who reported consistent condom use versus a 20% increase in County C, $p = .59$.

Fourteen percent and 2% of County I respondents reported being involved in a new pregnancy or being diagnosed with an STD since pretest, respectively, versus 8% and 0% in County C. Few interviewees in the two counties reported using alcohol or other drugs at last intercourse; both counties showed similarly modest increases in this variable at posttest (see Table 8).

Four (2.5%) of the 158 anal virgins at pretest in County I reported initiating anal intercourse during the study period versus 3 of 68 (4.4%) in County C. At the posttest 13 (7.8%) County I respondents and 8 (11.0%) County C respondents reported at least one act of anal intercourse. Almost half (6 of 13) of County I respondents reporting anal intercourse reported one or more times when a condom was not used versus only 1 of 8 in County C.

DECISION STAGING

At posttest, similar proportions of interviewees in the two counties who were not already at maintenance stage at pretest, advanced in the TT decisions whether or not to remain abstinent (virgins at pretest) and whether or not to return to abstinence (sexually active at pretest). In County C 86% (6 out of 7) sexually active interviewees not already at maintenance stage regarding the decision to use condoms consistently at pretest advanced to a later TT stage at Time 3 compared with 43% (17 of 40) in County I, but none of these differences were statistically significant by county.

DISCUSSION

INTERVENTION STUDY

One year after the initiation of the program all STAND members reported talking with friends both about birth control or condoms and about STDs in the 3 months preceding the survey; the increase among STAND members on both variables (+180% and +282%, respectively) was statistically different from the frequencies reported by comparison subjects (+12%, -33%). Thus STAND training appears to have been effective in encouraging communication between teens about sexual risk and risk reduction. Furthermore, their significantly greater gains in AIDS Risk Behavior Knowledge (more than four times the increase among comparison subjects leading to a mean Time 3 knowledge score of 88%) suggests that the information being shared by STAND-trained peer educators is likely to be accurate. STAND members also reported greater absolute gains from Time 1 to Time 3 (+9% vs. +1%) in communication about sexual matters with the person they were dating, although these differences were not

Table 8. Prevalence and Means of Sexual Behaviors, by County: Diffusion Study (Telephone Interviews)

Variable	County I (STAND)		County C (Comparison)	
	Pre	Post	Pre	Post
Nonvirgins (n[%])	83 (50.0) ¹	103 (62.1) ²	20 (27.3) ³	31 (41.9) ⁴
Initiated intercourse (n[%]) ^a	—	20 (23.8)	—	11 (20.4)
Consistent condom user (n[%]) ^b	52 (69.3)	46 (61.3)	10 (62.5)	12 (75.0)
Condom use at last intercourse (n[%]) ^b	47 (45.2)	77 (74.0)	16 (51.6)	20 (64.5)
No. of acts of intercourse (M) ^c	5.8	6.3	3.0	6.1
No. of acts of unprotected intercourse (M) ^c	1.8	2.6	1.6	2.0
No. of acts of intercourse with condom (M) ^c	4.0	3.7	1.4	4.1
Reporting a new sexual partner (n[%]) ^{a,b}	—	34 (57.6)	—	8 (66.7)
Involved in a pregnancy (n[%]) ^{a,b}	—	13 (13.7)	—	2 (7.7)
Diagnosed with STD (n[%]) ^{a,b}	—	2 (2.2)	—	0
Used alcohol/drugs at last intercourse (n[%]) ^b	3 (4.0)	5 (6.7)	(6.3) 1	2 (12.5)
Progressing in TTM stage (n[%]) ^d				
RE: remaining abstinent ^b	—	8 (53.3)	—	10 (55.6)
RE: returning to abstinence ^b	—	24 (43.6)	—	5 (50.0)
RE: consistent condom use ^b	—	17 (42.5)	—	6 (85.7)

Note. Within rows, means with different number superscripts differ at alpha = .05.

^aSince pretest.

^bAmong all nonvirgins who provided usable data.

^cIn the preceding 3 months.

^dAmong all individuals providing usable data and who could progress (i.e., were at action stage or below).

^eAmong all respondents providing usable data who reported being virgins at pretest.

statistically significant. Thus STAND appears to be effective at achieving the goal of increasing communication about HIV/STDs and birth control. DOI theory predicts that such communication from opinion leaders is likely to lead to the broader adoption of the promoted risk reduction behaviors.

Study data also suggest that STAND members were engaging in more risk reduction behavior than their peers 1 year after the initiation of the program, although some effects were markedly greater immediately after the 4-month training and showed regression toward the comparison group value at Time 3 follow-up. Almost two thirds of sexually active STAND members reported using condoms for every act of intercourse at Time 3 compared with less than half of comparison subjects (64% vs. 46%)—a significant two-fold greater increase from pretest (STAND: +28%; Comparison: +15%). STAND members also reported substantially larger (but statistically not significant) increases from Time 1 to Time 3 in condom use in the preceding 3 months, expressed either as the absolute number of condom-protected acts (+213% vs. +31%) or as a proportion of all acts of intercourse that were unprotected (-30% vs. +29%). During the training period the frequency of unprotected sex among STAND members approached zero; at Time 3, however, this frequency had doubled for both groups compared to pretest. Similarly, the proportion of STAND members who reported condom use at last intercourse increased 22% from Time 1 to Time 2 (vs. an 8% decrease among comparison subjects); at Time 3, however, the two groups reported similar frequencies of condom use at last intercourse. STAND members also reported increased condom use self-efficacy (Time 3–Time 1: +16%) that was significantly different from that reported by comparison subjects (-1%).

The pattern of larger effect immediately after the training and regression toward comparison group values during follow-up is also seen in the fact that no STAND members initiated intercourse during the training period (compared to one third of virgins in the comparison group) although the proportion of respondents reporting sexual debut was similar for the two groups at Time 3. Similarly, all of the non-virgin STAND members who were not already at maintenance at pretest progressed in their decision regarding consistent condom use at Time 2 (compared to one third of the equivalent comparison group); this difference between groups still favored STAND members (67% vs. 53%) at Time 3 but was not significant. In addition, no STAND members reported engaging in anal intercourse after the study began while 11% of nonvirgins in the comparison groups had initiated anal sex by Time 3.

STAND's focus on refusal skills building may also be effective as evidenced by the 16% absolute increase in self efficacy to refuse unwanted sexual intercourse among STAND teens over the 12-month study period, although this increase was not statistically different from the comparison group 4% decrease. These behavioral trends reduce the risk of pregnancy and STD infection in this group.

Initial attitudes toward both HIV prevention and condoms were unexpectedly high (4.30 and 4.25 on 5-point scales). Changes in these measures over time were not statistically significant, although they both favored STAND subjects, possibly reflecting ceiling effects.

Although a primary emphasis of STAND is on the promotion of norms favoring abstinence, STAND members perceived decreased peer acceptance of abstinence at Time 3, and this decrease was similar to that reported by comparison subjects. Perception of norms regarding condom use remained essentially unchanged throughout the study as measured by our scales. Although we had hoped to obtain a positive effect on

these variables, group norms are unlikely to change quickly. Additional data are therefore being collected to determine whether or not change is perceived in these norms after another 12 months during which the STAND program has continued in County I.

Mean scores on the Health Protection Communication Scale decreased over the study period for both the intervention and the comparison groups. Unlike the Dyadic Sexual Communication Scale, the Health Protection Communication Scale asks the respondent to report how often he or she has asked or told a sex partner about past risk activities, STDs, and so forth. STAND, however, views such conversations as an ineffective risk reduction strategy because of the potential for lying, etc., and does not actively promote such discussions. Decreases on the Health Protection Communication Scale in conjunction with the 9% increase observed in the Dyadic Sexual Communication Scale among STAND members therefore constitute an internal control in direct support of the positive effect of the program on targeted communication skills.

Two study findings are of particular concern. First, although both groups of subjects reported substantial increases in the frequency of vaginal intercourse, the increase among STAND members was about twice that of comparison subjects. Although this difference was not statistically significant, if this trend is observed in subsequent studies, changes in the curriculum would clearly be required (e.g., some reduction of the "sex-positive" approach). Perhaps of greater concern is the fact that three of the 14 sexually active STAND members were involved in pregnancies (all three were males). None of these pregnancies, however, occurred after the STAND training had been completed.

DIFFUSION STUDY

Survey data clearly demonstrate a broad penetration of awareness of the STAND program in the intervention school population (84%). Significant differences favoring the intervention county were observed in changes in the proportion of teens engaging in conversations with peers about STDs and with parents or other adults about sexual matters. Trends in the frequency of these conversations also favor the intervention county although the differences were not statistically significant.

Changes observed in knowledge of AIDS-related risk behaviors, attitudes toward HIV prevention and condoms, and beliefs about self-efficacy and sexual norms all showed no or small change ($< 5\%$) over the 12-month study period, and the changes were similar for respondents in both counties. Similarly, changes in some sexual behaviors such as the frequency of sexual debut, pregnancy, STD, and anal intercourse and debut were not different between counties. Sexually active respondents in County I did report a larger (though not statistically significant) increase in condom use at last intercourse (County I: 64%; County C: 25%). Conversely, there was a nonsignificant trend favoring County C in both consistent condom use and the proportion of all intercourse that was condom protected. No significant differences were noted in any of the three sexual decisions for which Transtheoretical staging was assessed although there was a greater tendency in County C than in County I for respondents to progress in the decision to use condoms consistently (86% vs. 43%).

The mixed results obtained in the diffusion study suggest that the STAND program has not had a measurable consistent effect on the larger school population as yet. This finding was not unanticipated in the 12-month follow-up data for three

reasons. First, the likelihood of obtaining significant diffusion effects would have been greater if more students had received STAND training than could be accommodated in this initial implementation and feasibility study. The 21 students trained in this study constitute only 4% of their 10th-grade class, which is low in the 3–16% range of population coverage recommended by Rogers (1983). In future studies of this program we will therefore include at least 20% of the population as trainees. Second, as also noted above, population-wide change in sexual behaviors and attitudes is typically a slow process and may be expected to require longer periods of time. Third, American high school 10th-graders (the target for STAND training) do not have the impact on school norms that older students do. Therefore, assuming that STAND-trained peer educators maintain a commitment to promoting risk reduction, we anticipate that the effect on sexual norms will increase as STAND members become seniors. To test the possibility that the STAND members in this study are having an effect on the population but that this effect will not manifest itself until the program has been in place for a longer period of time, additional follow-up telephone interviews of students in County I and County C are being collected 12 months after the posttest reported here (Time 3). To further enhance the likelihood of diffusion effects, a club open to all STAND-trained peer educators has recently been established at the intervention school. Students in this club meet approximately every 2 months for various activities aimed to reinforce personal sexual risk reduction and to plan similar schoolwide activities.

SUMMARY

The analyses of this study data suggest that STAND can be an effective program leading to increased communication about sexual issues, improvements in knowledge and self-efficacy, and substantial adoption of risk-reducing behaviors among teens who complete this program of peer-educator training. STAND also appears to be effective in encouraging virgins to continue to delay first intercourse, although this effect does not appear to continue after the training. No clear evidence of diffusion of these effects into the larger school population in the intervention county was obtained, although such effects might be obtained in studies that employ larger training samples and/or longer follow-up.

Collectively, these findings not only support the growing body of evidence that the DOI and TT models are promising for the design of prevention interventions that are effective in modifying the knowledge, attitudes, and behaviors of participants but also demonstrate the value of employing these theoretical paradigms conjointly. The study data failed to clearly support the diffusion of these effects to nontrainee students, but this result could be a function of the small number of peer educators trained in this preliminary study.

As with all evaluations that rely on self-reported sexual behavior data, there exists the possibility that the measures employed may not be entirely accurate, but it is assumed that any such inaccuracies apply equally across the study groups and thus do not affect our conclusions (Catania, Gibson, Chitwood, & Coates, 1990). One of the comparison groups in County C, however, comprised student leaders selected in a different manner, who received 22 hours of training instead of the 36 hours received by STAND trainees. A second comparison group (in County I) consisted of teens who were identified as opinion leaders but who declined to participate in the intervention.

It may be that these differences among groups account for some portion of the observed differences in the postintervention measures. This concern is decreased by pooling the data from all three comparison groups so as to minimize the potential effect of any one group.

The relatively small sample sizes employed in this initial implementation and feasibility study also suggest caution in interpreting the study findings. Although the trends in the comparisons drawn mostly favored the experimental intervention and in some cases suggested substantial positive effects, these conclusions must be tested in subsequent studies with greater statistical power. Future studies will also employ a more strictly equivalent control intervention and test the effectiveness of STAND in other settings, including other counties, private schools, and more urban communities. These studies are currently in progress.

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