

# Testing the Social-Stress Prevention Model in an Inner-City Day Camp

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In an effort to improve inner-city children's knowledge of problems of drug and alcohol abuse, especially related to traffic safety, a test of the Rhodes and Jason social-stress prevention model was conducted as part of a comprehensive summer day camp for largely minority youngsters in Wheeling, West Virginia. As part of a multidisciplinary and comprehensive approach to youth development called Project YES, the drug and alcohol module (DAM) was designed to improve students' awareness of issues, consequences, and physiological effects. Important findings are that intense drug and alcohol awareness training could be successfully integrated into an intense day camp context among inner-city youth and that the DAM was a reasonably popular part of the curriculum. An 18-item, matched-subject knowledge test showed significant knowledge gains as a result of the intervention. Further exploration into knowledge-residual and actual behavior change is suggested.

Abuse of alcohol and drugs in the United States has captured the attention of parents, teachers, community leaders, and policy makers as never before. Epidemiological studies continue to demonstrate the incredible consequences of drug and alcohol abuse, and research summaries suggest that youths are especially at risk. At least 56 percent of the nation's school-aged children begin to experiment with alcohol before entering high school; by their senior year, the proportion has grown to 92 percent, and approximately one-third of those people were reported to be regular users (1). The same authors state, "When this [alcohol] abuse is combined with tobacco, drug drug-taking behavior appears to be well entrenched in our public schools [even though] recent studies indicate a downward trend in drug use in schools."

The National Safety Council (2) reports that 1,100 pedestrians under 4 years of age were fatally injured in 1990; 650 fatal pedestrian injuries occurred to children 5 to 14 years old. Children riding bicycles accounted for 400 fatal injuries to persons under 4 years old; 350 fatal bike injuries were tallied for riders 5 to 14 years of age (2). The pervasiveness of alcohol and drugs in schools suggests that some of these traffic deaths involved impaired riders or pedestrians.

Social influences to drink or take drugs, especially influences associated with peer groups, suggest that the effect of friends may be so pervasive as to cancel out the threat of legal consequences or parental guidance (3,4). Jessor found that youth are more influenced by friends than parents (5,6). In a similar context, McPherson et al. (7) found that young

motorcyclists are significantly more likely to attend a safety course if influenced by peers than if influenced by parents or any form of media. Youth are often unable to even identify the amount of alcohol likely to affect them physiologically (7,8) or levels that impair driving performance (9).

Inner-city residents may have a greater problem than suburban residents. In a study of emergency room visits, black males had a higher percentage of emergency room episodes caused by drug use than white males. Blacks experienced more emergency room episodes than Hispanics and whites, according to a study of 27 metropolitan areas by the National Institute on Drug Abuse (10,11).

Drug use as a social-stress coping mechanism retards the development of further social competencies; failures in adaptive behaviors are related to heavy drug use, according to Wrubel et al. (12). Deprived social settings, by further implication, suggest increased drug and alcohol use, and this has been borne out by empirical study. In 1979, Padilla studied black Americans and found higher drug use. Similarly, Bobo found increased drug use among native Americans (13).

## MODELS OF PREVENTION

The earliest alcohol/drug abuse programs were implemented exclusively in schools and did not focus on traffic safety as a separate sphere of concern. These information (cognitive) models were basically educational curricula emphasizing increased individual responsibility: preparing young people with information and using scare tactics (14). Some authors suggest that single-modality programs have limited impact on preventing drug and alcohol abuse (15-17).

A more recent set of approaches has evolved during the late 1970s, especially the affective models, positing that drug and alcohol problems result from lack of social competence and clear social values (18).

Environmental programs, the most recent set of models proposed in the literature, have an information component and often stress social competence, but they add cultural and even community support to the program and may focus on specific spheres of concern, such as traffic safety problems of incipient drivers. This "broader view" of abuse problems suggests that "appreciation for the complexity of the [abuse] problem holds significant promise" (14).

Rhodes and Jason present a compelling model of prevention adaptable for use with inner-city, socioeconomically deprived youth (19). Their 1987 social-stress model emphasizes ecological, or environmental, aspects of adolescent behavior. These aspects include three categories of influence: the social

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network, social competence, and social resources. These three categories of stress moderators yield a subjective alcohol or drug risk value for a given individual.

In 1988, Rhodes and Jason suggested that stress may arise from within the family, the school, a peer group, or the community. To generate these positive social networks, a child needs adult model figures and must incorporate at least some of their standards and values. Likewise, the influence of the peer group and family is important in reducing social stresses, thereby leading to "a sense of efficacy and control in his or her interactions" (20).

Similarly, these authors advise that social competencies, such as decision-making skills and peer pressure resistance, and, by implication, self-esteem, are avenues toward improved self-control. The third critical component in the social-stress model is the social resource factor, which takes the form of repositories of information. The school, the neighborhood, the church, or the community learning center can all serve as social resources for factual information, and even as role models.

Rhodes and Jason conclude, "The social-stress model provides a needed basis for a more comprehensive, ecological approach to prevention. Among the multiple factors that can potentially influence adolescents' alcohol and other drug problems, comprehensive, community-based prevention programs are in our view, the next logical step" (20).

### THE PROJECT YES MODEL OF PREVENTION

Based on a successful pilot program tested in Charleston, West Virginia, during summer 1990, Project YES (Youth Enrichment Services) was contracted in mid-1991 as a comprehensive, community-based program concentrating a great deal of its focus on drug and alcohol education and traffic safety. Project YES provided the test-bed for the Rhodes and Jason model of prevention.

The three focal components of the 6-week Project YES were (a) improving life skills, such as decision making, and the self-esteem of inner-city children 7 to 14 years old; (b) creating competencies in literacy, communicating, and writing through personal computers; and (c) improving safety and health skills and drug and alcohol knowledges.

Project YES was molded to correspond closely to the three stress moderators closely consistent with those proposed by Rhodes and Jason.

For social networks, Project YES provided both community leaders and teenage mentors as instructors and trained them for 10 hr in programs and necessary skills. Parents were used as adjunct or assistant instructors (a method that proved particularly useful for maintaining discipline during the hot, outdoor day camp). Multicultural instructors from local colleges and institutions provided stories, physical education, and dance instruction. Children learned who could provide factual answers to questions about drugs and alcohol, bicycle safety, computers, and so on.

For social competencies, Project YES provided experts from local high schools who were themselves further trained in self-esteem improvement and decision skill enhancement and also in the inner workings of Project YES. Children learned better interpersonal communication via specific, one-on-one instruction and also by computers (small work groups created their

own Project YES newsletters). Bonding to group norms was encouraged through organized group activities (parachute movement, dances, "winning" mock debates, the use of Project YES T-shirts, and so on).

For social resources, Project YES incorporated the use of every available community resource on alcohol/drug information, bicycle safety, computer information, personal hygiene information, academic information, and much more. This in turn was delivered by African-American police officers (motorcycle and cruiser), storytellers from the local library, a farm couple who allowed horseback riding only with appropriate safety gear, church leaders, and parents who originally developed the idea of a community learning center where the Project YES day camp was held. Resource personnel were volunteers and were carefully instructed beforehand about Project YES and why their own position in the community was important to long-term behavior change long after the day camp had ended. Among the community dignitaries attending one or more Project YES activities were Gaston Caperton, governor of West Virginia, and his wife, Rachael Worby.

Figure 1 shows how the parent model of Rhodes and Jason was equipped for testing by the components of Project YES.

### RESEARCH METHODS: A MODEL-BASED DRUG AND ALCOHOL CURRICULUM

As a drug and alcohol awareness intervention, the drug and alcohol module (DAM) included specific instruction, arranged in five lessons, as follows:

1. Pre-test, differences between drug use and drug abuse, problems encountered by well-known sports figures, definitions of drugs, types of drugs and alcohol and where they are found, and problems of drinking and driving (2 days);
2. Physiological changes with drug and alcohol use, neighborhood sports figures with drug problems, and common drugs and forms of alcohol (hands-on, local resources) (2 days);

Moderator Type (Rhodes and Jason)	Moderator Component (Project YES)
Social Network	<ul style="list-style-type: none"> <li>• adult role models</li> <li>• teen mentors</li> <li>• parent figures</li> <li>• consistent adult support</li> <li>• networking outside classroom</li> </ul>
Social Competencies	<ul style="list-style-type: none"> <li>• decision-making training</li> <li>• communications instruction</li> <li>• peer-pressure resistance training</li> <li>• self-esteem instruction</li> </ul>
Social Resources	<ul style="list-style-type: none"> <li>• non-traditional teaching venues (zoo, farm, college, library, public transportation, restaurants)</li> </ul>

FIGURE 1 Project YES stress-moderator categories.

3. Social and economic consequences of drug abuse (divorce, jail, problems in school, lost driver's license), child/spouse abuse, and introduction to role-playing (2 days);

4. Special problems (drunk driving and consequences of being caught while driving impaired) and role-playing strategies (1 day); and

5. Review: differences in alcohol sources (liquor, beer, wine), effects of drugs and alcohol on inexperienced people, "gateway" drugs, guest (black police officer), continue role-playing, post-test (3 days).

The DAM relied heavily on role-playing activities (which often included the teen mentors who lived in the local community), strategies to reduce peer pressure (tell an adult, walk away, "just say no") and responding with facts during a "confrontation." To reinforce the resource component of the model, the DAM also included training about where in the Wheeling community to get help against peer pressure and where to get the facts about alcohol and drugs in the community.

The DAM emphasized national and local sports figures who had lost their careers, or worse, through drug or alcohol abuse. The positive impact among Project YES youth of sports prodigies who avoided contact with drugs and alcohol could not be overstated. These included Jim Paige, East Wheeling's own college basketball star (now West Virginia's state treasurer).

As much as possible, the concepts from the DAM were referenced during other Project YES components such as self-esteem training, computer-based writing activities, and nutrition projects. For example, students might write about a sports figure affected by drugs or compose a story focusing on a peer-pressure tactic during computer workshops.

An 18-item knowledge pre-test was developed and administered to 82 children 6 to 14 years old enrolled in the 1991 Project YES day camp in East Wheeling, West Virginia. The pre-tests were administered in late June on 2 consecutive days, followed by the 3-week instructional period. The same test was administered as a post-test on 2 consecutive days in mid-July 1991. Thirty-one of the students who took the pre-test were in attendance for the post-test. Participation in all Project YES activities was voluntary; thus, the DAM instructional group changed slightly each day over the instructional period. For this reason, a matched-subject design was chosen to reduce the need for a true experimental control group and to

account for what appear to be dropouts. The voluntary nature of the program made a true control group logistically impossible.

## RESULTS: EFFECTIVENESS MEASURES

Knowledge about drugs and alcohol showed significant improvements in the 3-week period of the DAM for all participants. On an 18-question inventory, 31 students averaged 7.90 questions correct on the pre-test but 13.81 items correct on the post-test. The improvement in pre- to post-test scores was statistically significant at  $p < .001$ , suggesting that the application of the DAM was responsible for the improvement in post-test scores. All students except one had improved post-test scores; the single exception had scores that did not change.

Table 1 gives descriptive pre- and post-test breakdowns of score means within the variables age and gender on the DAM. (The "young" group consists of ages 6 to 11 years; "old" indicates 12 to 14).

The next analysis concerned the gain scores between pre- and post-tests. The anticipated significant gains were observed (see Table 2).

The following analysis revealed that whereas older students gained slightly more knowledge than younger students, there was no real age difference in drug and alcohol score gains.

However, the results indicated that on entering the DAM, there was a large raw score performance gap related to age. The older group performed significantly better on the pre-test than the younger group ( $p < .0015$ ). The gap still existed on the post-test; results of the post-test only indicated that young and old groups performed significantly differently ( $p < .0003$ ) (see Table 3).

The young group of 11 students improved knowledge scores significantly ( $p < .0001$ ) and the older group of 20 students also performed better on the post-test ( $p < .0001$ ). Improvements were observed, therefore, regardless of student age.

A final analysis indicated that the subtracted differences between pre- and post-tests were slightly higher for females, but not significantly higher than the males. The female-only group showed significant improvement on the post-test ( $p < .0001$ ), and this feature was also observed for the male group ( $p < .0001$ ).

TABLE 1 Descriptive Raw Score Breakdown, Drug and Alcohol Module

<u>Gender</u>	<u>Score</u>	<u>Std. Dev.</u>	<u>Age</u>	<u>Score</u>	<u>Std. Dev.</u>
<u>Pre-test</u>			<u>Pre-test</u>		
Female	8.85	3.88	Young	4.90	1.92
Male	7.11	4.36	Old	9.54	4.12
<u>Post-test</u>			<u>Post-test</u>		
Male	14.92	5.26	Young	9.90	3.50
Female	12.89	4.48	Old	15.95	4.10

**TABLE 2 Summary, Hypothesis Test of Difference Scores**

Sample Size	31
Sample Mean	5.98
Standard Dev.	3.82
Standard Error	.541
T value	-10.98
df	38
2-tailed prob.	<.0001

The DAM was rated the fourth-most-popular activity in Project YES, behind field trips, bicycle safety activity, and computer instruction and ahead of self-esteem, hygiene, dance, and nutrition.

## DISCUSSION OF RESULTS

Our results suggest that when applied in a context of a community-based, comprehensive youth development program, a 3-week drug and alcohol awareness module can foster significant improvements in knowledge of problems of abuse, legal consequences of drinking and driving, and physiological responses. We note that all students improved (one student held the same score) from preintervention test to postintervention test, and the analysis strongly implies that the intervention was responsible for the gains.

However, because a true control group was impossible, the possibility remains that the students who elected not to return to Project YES during times when the post-test was given were less motivated. This alternative explanation cannot be countered.

That older students performed significantly better than younger students on both the pre- and post-tests may not be surprising, since the issues are more germane to older children, who have greater cognitive skills available anyway. Age differences were observed on both pre- and post-tests, and older students were better performers all around. The DAM is age specific but not gender specific, since males and females performed approximately the same on pre- and post-tests.

**TABLE 3 Summary, Hypothesis Test for Age, Pre- and Post-Tests**

	Pre-test		Post-test	
	Young	Old	Young	Old
Mean	4.98	9.55	9.98	12.88
Std. Dev	1.92	4.12	3.59	4.19
t value	-3.58		-4.06	
df	29		29	
2-tailed prob.	<.0015		<.0003	

From the point of view of the social-stress model, it appears that students between 6 and 14 years old of both sexes can significantly improve their awareness of drug and alcohol problems in a traffic safety context as a result of a structured, nurturing social system complete with the three necessary components: social networks, social competencies, and social resources.

## CONCLUSIONS AND RECOMMENDATIONS

The investigators make no claim that these results are the "final answer" to solving drug and alcohol problems among youth who are also bicycle riders and future drivers. However, these results indicate that formal safety and health training is, indeed, possible in the inner city and that, under the right conditions, it is a popular part of an integrated approach to the problem. At a minimum, these results warrant further research based on the prevention model used here and among inner-city youth.

The investigators are confident that the results of administering the DAM within the context of a larger, supportive youth development program such as Project YES has successfully improved awareness of certain components of the drug and alcohol problem. If improving long-term behavior is the ultimate goal, a strong foundation of knowledge can support changes in attitude and skills that show up later.

However, even though the results of this test of the Rhodes and Jason model do not support a conclusion that the observed effectiveness of the DAM in improving awareness necessarily leads to improved behaviors (declining to drive a car after drinking, for example) or skills (in peer-pressure defense, for example), it is entirely logical to encourage further tests of the model on behavior and skill change over the long term.

Because of the ineffectiveness of unimodal programs seeking to change drug and alcohol awareness levels through single, personal characteristics (self-esteem or peer-pressure training, but not both), it seems that the utility of the Rhodes and Jason model (or similar multimodal, integrated approach) is bolstered.

It could be argued that improvements in a single sphere of Project YES will only be effective in the presence of the others; in fact, this is what Project YES planners had hoped for. The comprehensive nature of Project YES meant that each facet of youth development was linked, reinforced, tied, and otherwise valued by each other module within the community. This is perhaps the reason for the observed success of the DAM: when explicitly supported by self-esteem training, role modeling, parental involvement, peer-pressure training, and decision making, improvements in drug and alcohol awareness appear. Unlike other models that might anticipate improvements in alcohol and drug awareness as a function of three independent dimensions of contact, the Rhodes and Jason model is far more predictive and useful.

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*Publication of this paper sponsored by Committee on Alcohol, Other Drugs, and Transportation.*