The Narconon Drug Education Curriculum for High School Students: A Non-randomized, Controlled Prevention Trial

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EXECUTIVE SUMMARY

Introduction

Although the annual, benchmark study, Monitoring the Future (MTF), has measured small declines in drug use during the past few survey years, the estimated 13 million youths aged 12–17 in the U.S. who become involved with alcohol, tobacco and other drugs annually remains high compared with the declining trend seen during the 1980's which ended in 1992.

Problem areas include, just to quote a few examples, the estimated $22.5 billion that underage consumers spent on alcohol in 1999 (of $116.2 billion total); an alarming 212 percent increase in the number of 12- to 17-year olds abusing controlled prescription drugs between 1992 and 2003 (which have gotten much worse since the time of this study); and youth initiation of pain relievers estimated at 1,124,000 in 2001, second only to marijuana initiation at 1,741,000.

Controlled prescription drugs (including OxyContin, Valium and Ritalin) at the time of the study were the fourth most abused substances in America behind only marijuana, alcohol and tobacco.

When prevention efforts fail it is not at small cost. In 2005, lifetime prevalence rates for any drug use were 21%, 38%, and 50% in grades 8, 10, and 12, respectively. Although it can be argued that not all students who try drugs will develop problems, in 2002

the alcohol abuse and dependence-related costs for lost productivity, healthcare, criminal justice, and social welfare were estimated at $180.9 billion. For many youths, substance abuse precedes academic problems such as lower grades, higher truancy, lower expectations, and drop out decisions. In fact, the more a student uses cigarettes, alcohol, marijuana, cocaine and other drugs, the more likely they will perform poorly in school, drop out or not continue on to higher education.

Consistent with the goals and public health agenda of the Office of National Drug Control Policy (ONDCP) and the Department of Education, the Narconon program's ultimate goal is to prevent and eliminate drug abuse in society. Research has shown that preventing or delaying initiation of alcohol or other drug use during early adolescence can reduce or prevent substance abuse and other risk behaviors later in adolescence and into adulthood. However, there is still much discussion regarding what policy and strategies to employ toward this goal. For the past 40+ years, Narconon drug prevention specialists have delivered seminars aimed at supplementing existing prevention efforts by further illustrating materials covered in school curricula. In 2004, Narconon International developed an eight-module drug education curriculum for high school ages based on the research and writings of L. Ron Hubbard as incorporated into the secular Narconon drug rehabilitation methodologies. Program developers analyzed post-program student feedback, surveys collected as a quality management practice that has been in place since program inception and continues today, in light of evidence-based practices and prevention theory to create a stand-alone, universal (all youths) drug education curriculum for high school ages aimed at addressing key problem areas.

The eight module Narconon drug education curriculum for high school ages incorporates a unique combination of prevention strategies with content addressing tobacco, alcohol, marijuana and common "hard drugs." Health motivation, social skills, social influence recognition and knowledge-developing activities address a number of risk and protective factors in the etiology of substance abuse and addiction. The aim of this study was to assess the program's ability to change drug use behavior, attitudes and knowledge among youths and evaluate the components of the Narconon drug prevention curriculum against prevention theory.

METHODOLOGY

Description of the sample

Narconon staff recruited 14 schools from two states. Schools were assigned to education or control groups based on similarity of school size, community size and general ethnicity. Schools also agreed to complete three testing points: Baseline, approximately one month later, and a six month follow-up. The full Narconon drug education curriculum was implemented either after completion of the baseline survey (education

condition) or after completion of the final six month survey (control condition). Fidelity of curriculum delivery was verified by facilitator report.

After obtaining parental consent, there were 236 control group and 244 experimental group students in Oklahoma, with 295 control group and 220 experimental group students in Hawaii. Voluntary assent and confidentiality were explained to the students. After the baseline survey, one charter school of 26 participants withdrew from the study for scheduling reasons. No provision was made to adjust representation by gender or potentially interesting ethnic or risk groups.

The study protocol and consent forms were reviewed and approved by Copernicus Group IRB (Protocol HI001). Human participant protections certified survey staff assigned each student a unique identification number based on a classroom roster. For confidentiality, students marked their answers on standard bubble answer forms labeled only with their unique identification number. The roster and identification code was used to give students the same identification number at each survey point, thus permitting comparison of answers given on each measurement occasion—a sampling strategy that provided the necessary statistical power to identify differences in tested variables among a universal classroom population, where the majority of youths do not use drugs. Completed answer forms were placed by each student into a security envelope, sealed, and returned to survey staff for mailing to the Principal Investigator for scanned data entry, data management, and statistical analysis.

Drug education intervention

The study design called for each of the schools recruited to the experimental conditions to receive the complete drug education curriculum. Professionally trained facilitators followed a codified delivery manual and completed a daily compliance report. Codified Narconon drug prevention curriculum materials help the facilitator implement the program according to specific standards, maintaining program fidelity.

Outcome Measures

The primary outcome measure was "last 30-day substance use" using the Center for Substance Abuse Prevention (CSAP) Participant Outcome Measures for Discretionary Programs designed for outcomes evaluation in CSAP funded substance abuse prevention programs which is recommended for use in a pre-test/post-test design. (Form OMB No. 0930-0208 Expiration Date 12/31/2005). Questions were directed to frequency of use of twenty-two drugs of abuse including twelve questions from the Monitoring the Future Survey.

Secondary outcomes assessed by the CSAP instrument included perception of risk, attitudes and decisions about drug use including five questions from the Monitoring the Future Survey that ask about perceived harm from substance use; and four questions

from the Student Survey of Risk and Protective Factors that ask about drug use attitudes. In addition to calculating change in behavior and beliefs among individuals, these questions permit comparisons to state and national norms.

Additionally, the program developers recommended 25 questions that were appended to the CSAP survey for the purpose of assessing whether drug education concepts covered by the Narconon program are correctly understood by each program recipient, to what extent they are retained at follow-up points, and whether or not students could apply key program concepts. The program developer questions were designed to examine proximal effects including the ability of the program to educate by examining recall of program material, as well as give an impression of student capacity to apply program skills such as self-reported ability to communicate their beliefs on substance use, recognize and resist pressures to use substances, and make decisions.

Statistical analysis

The non-randomized design—where it cannot be assumed that groups assigned to experimental and control conditions will be equal—calls for a conservative analysis. For this reason the study utilized Analysis of Covariance (ANCOVA) of the change scores from baseline, controlling for initial drug use as well as changes in the school populations as covariates.

RESULTS

Evaluation of Narconon curriculum components

Table 1 outlines the eight curriculum sessions against key constructs used by many drug prevention programs. The interactive curriculum imparts science-based information from fields as diverse as toxicology, forensic science, nutrition, marketing, pharmacology, and many others. Program materials include audiovisual support and clear lesson plans that are to be delivered in their entirety combined with quality management tools such as anonymous student questionnaires for each session and a facilitator's log sheet to list any session problems and/or questions.

Facilitator training emphasizes the importance of effective communication as well as creating an environment in which students may ask questions, discuss personal situations, and actively participate.

Effects of the Narconon drug education curriculum on drug use compared with sites that have not yet received the curriculum

At follow-up, as shown in **Table 4**, students in the drug education program, but not the control group, had moved toward less drug use for virtually all of the drug use types. Given the similarities of group drug use behavior measured at baseline, this pattern alone supports the reliability of the differences created by the drug education curriculum.

A number of drug use reductions achieve statistical significance. Characteristics of the specific tests indicate the effectiveness of the program. The areas of alcohol, tobacco and marijuana use in the past 30 days are particularly relevant to high school populations: Amount of cigarette use showed the strongest effect, followed by use of smokeless tobacco and cigarette frequency. Frequency and amount of marijuana were also statistically significant. Differences in alcohol usage and being drunk produced marginal effects.

Among the "hard drugs," use of amphetamines was somewhat prevalent among these youths and was significantly reduced by the curriculum.

The differences between the drug education and control groups are consistent with the literature on universal, classroom-based types of intervention where drug use data is obtained by self-report and levels of substance use are high among only a small subgroup of youths.

Influence of the Narconon drug education curriculum on perception of risk and attitudes about drugs or drug use compared with sites that have not yet received the curriculum

Six months after participating in the program, controlling for baseline differences, there was a much greater tendency for the control group to plan to get drunk in the year following the six-month follow-up compared with the drug education program group as well as a stronger decision to smoke cigarettes among the control group. In comparison, the drug education treatment group stated a stronger commitment to a drug free lifestyle than the control group.

At six month follow-up, four out of five questions assessing risk of harm were statistically significant. Significantly more students in the drug education group indicated great risk to the question "how much do people risk harming themselves (physically or in other ways) if they try marijuana once or twice or smoke marijuana regularly." These attitudes are also reflected in the developer-suggested questions with youths who received the drug education program gaining the attitude that drugs are bad.

Competency in absorbing the material covered in the Narconon drug education curriculum compared with sites that have not yet received the curriculum

As shown in **Table 9**, six months after receiving the drug education program, significantly more students who received the drug education curriculum were able to give answers consistent with the program content for all nineteen items, controlling for differences at baseline. Of interest, students in the drug education program improved their understanding that alcohol is a drug and that drug abuse includes both legal and illegal substances. At baseline, most students had a poor appreciation of the effects of drug use on nutrient status which was corrected by the program.

The curriculum also corrected a common misperception about marijuana—that because it grows naturally the chemicals it contains are not harmful. Students also correctly identified a major source of social influence to use drugs as media advertisements. Answers to many of these questions indicate that students who received the drug education curriculum showed a greater understanding of the broad effects of drugs on the mind and body.

Of the six questions assessing student decisions and behaviors, three produced significant change. Students in the drug prevention group were more likely to indicate that they knew enough about drugs to make decisions. Interestingly, recipients of drug prevention indicated a greater current ability to resist pressures to take drugs although the question assessing past resistance to drug use pressures was answered similarly between both groups at all time points. There was also a larger shift in the number of students who indicated "false" to the statement "drugs aren't really that bad".

DISCUSSION

The purpose of this study was to evaluate the capacity of the Narconon drug education program to produce a long-term impact on students' drug use behaviors in a universal (all student) classroom setting. To a large degree, baseline survey responses were similar to drug use patterns seen in large national surveys. After controlling for pretest levels of use, at six months after receiving the drug prevention curriculum students in the drug education group had lower levels of current drug use than students in the comparison group. Significant reductions were observed for alcohol, tobacco, and marijuana—important categories of drug abuse for this population—as well as certain categories of "hard drugs" including controlled prescription drugs, cocaine, and ecstasy. The results in Table 4 show a clear and reliable tendency among every category tested for the drug education program to produce reductions in drug use behavior.

This is encouraging in light of the evaluation being designed to provide a "real world" test of the Narconon program under the normal conditions of operating a classroom based intervention. Inherent barriers to administering the program and evaluation while schools were in session, including assessing its effectiveness with self-report questionnaires, leads to modest measurable differences between the drug education groups and the control groups with relatively large error terms.

The use of the CSAP survey methodology does not make quantifying the reductions in drug use possible and that was not an aim of this evaluation. Importantly, by testing a universal audience, rather than selecting groups of high risk students, the mathematical differences between student responses in each category remained modest due to the majority of students indicating no drug use at baseline.

The CSAP questions testing the hypothesis that changes in attitudes and beliefs would be modified by the drug education program, argue for a mediating effect on substance use. Interestingly, the questions aimed at discerning whether new knowledge was obtained and retained over time, although indicating an overall pre-existing acquaintance with the data, nonetheless categorically produced the most statistically significant changes.

Primarily an education strategy (Center for Substance Abuse Treatment classification), the Narconon program includes approaches that align with key prevention theories. Throughout the curriculum, persuasive communication is emphasized as the means to impart each component. Competency enhancement is accomplished through student interaction and after-school personal inspection of media and other environmental influences aimed at addressing social influences. Science based information is presented, and students complete exercises aimed at developing their ability to assess the correctness of messages presented as information from a variety of sources.

With respect to the importance of knowledge, while many early prevention programs gave individuals accurate facts about the harmful effects of alcohol and other drugs, theorizing that those individuals would reduce or avoid drug use because it was in their own best interest to do so, studies of this generic information-only or awareness model have led to one of the very few universally agreed-upon facts in the prevention field: That is, for the vast majority of individuals, simple awareness through passive receipt of health information is not enough to lead them to alter their present behavior or reduce their present or future use of drugs.

Since inception, Narconon prevention training materials have emphasized correct communication of information and interaction with the communicator. Facilitator training aligns with the five component communication persuasion model described by McGuire. According to this theory, to be effective an educator must get and hold the listeners' attention, must be understandable (comprehension), must elicit acceptance on the part of the person exposed to the message (yielding), the acceptance must be retained over time (retention), and thereby be translated into action in appropriate situations. Testing the ability to choose a correct answer only begins to answer the question of the perceived value and usefulness of that information.

To that end, the incorporation of persuasive communication into facilitator training and multi-media program components is suggestive. In theory, the communication of science-based information regarding the nature and effects of drugs can assist students in developing judgment and awareness, but only to the extent that the message sent is very real to youths and delivered in a way that students respect and can appreciate. Measurements of student satisfaction that include affective reactions (e.g., enjoyment, content value) should be further explored as they may reveal important shifts in perceptions about the information itself that would not be detected in simple "true/false" questions.

CONCLUSION

As an intensive, eight-module, educational curriculum, the Narconon program has thorough grounding in theory and substance abuse etiology, incorporating several important and historically successful prevention components.

This supports the prediction that participants in this classroom-based program would change their behavior regarding drugs of abuse. Further, the Narconon network provides a strong organizational structure to foster sustainable and high fidelity program implementation.

In this evaluation, the Narconon drug education curriculum produced reliable reductions in drug use a full six months after completion of the drug education program and in every category of drug use tested. A third of these questions—those assessing the drugs most commonly used by youths; alcohol, tobacco and marijuana as well as "hard drugs"—showed statistically significant reductions in use. The reductions achieved with both amphetamines and non-prescription use of amphetamines are important given recent increases in availability and initiation of these drugs. The reliability of the reductions measured in drug abuse behavior provide the most relevant support for the Narconon drug education curriculum.

The program's ability to produce reductions in drug use behavior appears to be through correcting prevalent but false messages while empowering youth to observe, draw their own conclusions, and potentially also improves interpersonal skills contributing to the development of appropriate group norms. These changes may result in shifts in perception of risk and corrected attitudes as individuals and as a group. However, the mechanisms of action for this program should be further explored using sensitive instruments and analyses designed to test this hypothesis. Although the CSAP questionnaire underwent an extensive development process, isolating effective components of drug prevention programs may require a more robust methodology, particularly in light of the theory constructs of this program.

The Narconon drug education curriculum for high school grades shows clearly positive results and sends an important and powerful message promoting abstinence. Given the significant reductions in drug use behavior, the scientific content and social influence theory underlying the program materials and their implementation, and the strong, centralized management by Narconon International, this program is very promising and fills a vital need in substance abuse prevention.

Table 4: Drug use at six month follow-up: Comparison of means between treatment and control groups.

	Control Group N = 420	Drug Ed Group N = 389	Direction of difference	Significance Level df = 11	
Drug Use Variable	Mean	Mean		*F*	p value=
B1 Cigarettes (frequency)	1.34	1.26	Positive	3.35	**<0.001**
B2 Smokeless tobacco	1.34	1.26	Positive	3.39	**<0.001**
B3 Cigarettes (amt. smoked)	1.49	1.35	Positive	3.89	**<0.001**
B4 Alcohol	1.57	1.41	Positive	1.87	**0.040**
B5 Being drunk	1.43	1.24	Positive	1.69	**0.073**
B6 Marijuana	1.30	1.18	Positive	2.28	**0.010**
B6 Marijuana (amt. smoked)	1.18	1.13	Positive	2.12	**0.017**
B8 Sniffed glue	1.13	1.06	Positive	0.86	0.584
B9 LSD	1.05	1.04	Positive	1.12	0.339
B10 Amphetamines	1.11	1.07	Positive	2.35	**0.008**
B11 Crack	1.06	1.03	Positive	0.681	0.758
B12 Cocaine	1.08	1.03	Positive	0.97	0.471
B13 Tranquilizer	1.09	1.06	Positive	.73	0.710
B14 Barbiturates	1.10	1.05	Positive	1.07	0.380
B15 Crystal Meth	1.07	1.04	Positive	1.12	0.273
B16 Amphetamine w/o Rx	1.09	1.03	Positive	1.59	0.098
B17 Heroin	1.04	1.03	Positive	0.327	0.980
B18 Other Narcotics	1.06	1.04	Positive	1.13	0.335
B19 Ecstacy	1.05	1.03	Positive	.97	0.475
B20 Roofies	1.03	1.03	Zero	1.19	0.287
B21 GHB	1.02	1.04	Negative	2.39	**0.006**
B22 Super K	1.02	1.02	Zero	1.96	**0.030**

• Controlling for baseline differences by using an analysis of covariance with a Type III sums of squares

Table 9: Percent of students who gave a correct answer to program content questions.

	Control		Drug Ed		Significance Level df = 11	
	N = 524	N = 419	N = 433	N = 388		
	Baseline	6-month follow-up	Baseline	6-month follow-up	*F*	p value=
1. Drugs affect your mind only while you are taking them. (answered false)	58.8%	68.7%	58.0%	68.3%	3.21	<0.001
2. Alcohol is not a drug. (answered false)	51.3%	54.9%	53.3%	70.9%	6.03	<0.001
3. Every drug really produces just one main effect and that is what you should be concerned about. (answered false)	62.2%	69.0%	56.4%	63.9%	3.77	<0.001
4. Drug abuse only means illegal drugs. (answered false)	79.0%	80.4%	76.7%	79.1%	4.24	<0.001
5. Because marijuana grows naturally, the chemicals it contains aren't really bad for your body. (answered false)	67.9%	74.2%	60.5%	68.8%	3.53	<0.001
6. One reason youth experiment with drugs is because they are advertised in movies, television and magazines. (answered true)	57.6%	61.6%	47.6%	64.9%	4.70	<0.001
7. All drugs change the way your body works, whether you want them to or not. (answered true)	76.1%	76.4%	65.4%	74.5%	2.15	0.015
8. Once you take a drug, it will always have the same effect each time you take it. (answered false)	48.9%	57.3%	47.3%	56.4%	3.58	<0.001
9. Drugs cause your body to use up vitamins and minerals. (answered true)	36.3%	50.4%	33.0%	72.9%	8.79	<0.001
10. Drugs can cause blank spots in your memory. (answered true)	75.2%	80.4%	66.5%	79.6%	5.06	<0.001
11. Drugs can cause a person to be sure they are doing one thing when in actual fact they are doing something else. (answered true)	68.9%	73.3%	60.0%	67.5%	5.25	<0.001
12. Hallucinogens are not as bad as other drugs. (answered false)	50.6%	57.0%	42.0%	59.0%	2.90	<0.001
13. Alcohol ads are designed only for people over 21 years of age. (answered false)	51.7%	59.2%	49.9%	58.8%	7.35	<0.001
14. Drugs can change how you feel, after a while a person on drugs can become depressed and not caring. (answered true)	76.5%	79.5%	72.3%	75.8%	3.23	<0.001
15. Once you stop drugs, it's over—they have no further effect on your body or mind. (answered false)	76.1%	77.3%	68.4%	70.9%	2.60	0.003

	Control		Drug Ed		Significance Level df = 11	
	N = 524	N = 419	N = 433	N = 388		
	Baseline	6-month follow-up	Baseline	6-month follow-up	*F*	p value=
16. Addiction only happens once you can't say no. (answered true)	31.9%	37.9%	26.1%	24.5%	2.95	0.001
17. It's okay if you just take drugs once in a while because the body cleans all the drugs out in a few days. (answered false)	66.4%	69.5%	63.0%	72.9%	3.53	<0.001
18. I know how to tell if I am getting good information about drugs. (answered true)	46.9%	61.1%	49.2%	63.4%	2.56	0.003
19. A person needs to have personal goals to be happy. (answered true)	60.1%	68.3%	52.7%	69.3%	3.28	<0.001
20. It is easy for me to communicate what I think or how I feel about something. (answered true)	63.4%	70.6%	56.8%	65.2%	1.34	ns
21. I know enough about drugs to make my own decisions. (answered true)	80.0%	84.2%	76.9%	81.7%	2.77	0.002
22. I can easily resist pressures to take drugs. (answered true)	72.3%	78.8%	70.0%	74.5%	2.77	0.002
23. I have resisted pressures to take drugs before. (answered true)	66.4%	69.2%	58.9%	68.3%	.88	ns
24. In the future, I might use drugs. (answered false)	64.9%	65.9%	60.7%	60.8%	2.74	0.002
25. Drugs really aren't that bad. (answered false)	79.4%	81.6%	70.9%	75.0%	1.91	0.035

• Controlling for baseline differences by using an analysis of covariance with a Type III sums of squares

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