Project Towards No Drug Abuse: Long-term substance use outcomes evaluation

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Abstract

Objectives. This paper presents up to 5 years post-program outcomes of Project Towards No Drug Abuse (Project TND), a drug abuse prevention program conducted in South California alternative high school system during years 1994–1999.

Methods. The effects of a 9-session health motivation–social skills–decision-making curriculum were evaluated. Twenty-one schools recruited were randomly assigned to standard care (control), classroom only, or a classroom plus semester-long school-as-community component. Last 30-day use of cigarettes, alcohol, marijuana, and hard drugs were assessed at three time intervals: short-term (year 1), middle-term (years 2 or 3), and long-term (years 4 or 5). Multilevel random coefficients modeling were employed to estimate the adjusted levels of substance use.

Results. Among 1578 baseline subjects, follow-up data were available for 68% (year 1), 66% (years 2 or 3), and 46% (years 4 or 5) of subjects, respectively. Results revealed significant positive long-term program effects for hard drug use at year 4 or 5 for the two program interventions ($P = 0.02$).

Conclusions. Project TND reduced hard drug use in the 46% who were successfully followed. It is the first program to demonstrate long-term self-reported behavioral effects on hard drug use among high-risk youth by using a school-based, limited-session model.
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Introduction

Project Towards No Drug Abuse (Project TND) was developed as a classroom-based drug abuse prevention program among continuation (alternative) high school youth. Continuation high school (CHS) youth have transferred out of the regular system due to functional problems (e.g., lack of credits, drug use, etc.) (Sussman et al., 1998). These youth are at high risk for drug abuse compared to those attending regular high schools (Simon et al., 1994; Sussman et al., 1998, Hoffmann et al., 2000; Sussman, 1996; Newcomb et al., 1987). The Project TND classroom-based curriculum used in this study consists of nine sessions and provides health motivation–social skills–decision-making material specifically targeting the use of cigarettes, alcohol, marijuana, and hard drug use (Sussman et al., 1998).

The first set of sessions motivates students to listen to subsequent programming and instructs effective listening skills. The second set of sessions instructs students in chemical dependency issues and alternative coping skills. The third set of sessions encourages making no-drug-use choices.

In addition to the classroom curriculum, the school-as-community concept was used to develop a community program component in which students participated in activities sponsored by the school but outside the classroom (Sussman et al., 1997). The hypothesis here was that provision of drug abuse material outside of the classroom, involving use of extra-classroom activities that make a limited movement outward to the nearby community, would enhance the effectiveness of classroom-based programming.

Prior findings

In a previous paper, self-reported behavioral results at 1-year follow-up revealed that students from schools in either

program condition exhibited a 25% reduction in hard drug use prevalence rates, relative to students from the control schools (Sussman et al., 1998). In addition, a 7% reduction in alcohol use prevalence was observed for students in either program condition, relative to controls, but only among those who were using alcohol at baseline (64% of the sample). No reduction effects, relative to controls, were found on the prevalence of cigarette or marijuana use.

Present study

The purpose of this paper was to test the long-term (i.e., up to 5 years post-program) impact of Project TND among CHS youth, delivered alone or in combination with a set of student-organized anti-drug activities outside the classroom. Given the strong preventive effects found for hard drug use in the 1-year follow-up evaluation, it was hypothesized that (a) the classroom program condition would continue to provide a reduction in substance use rates, most notably for hard drug use, compared to rates observed in control schools; and (b) the addition of extracurricular activities to the classroom program (i.e., classroom plus a semester-long school-as-community component) would provide a greater reduction than the classroom program alone in the long run. Propensity score analysis was conducted. The results from multilevel models were presented.

Methods

Experimental design

Project TND recruited 29 school districts from southern California. Using randomized blocking procedures, 21 CHSs were assigned to standard care (control; $n = 7$), classroom only ($n = 7$), or classroom plus a semester-long school-as-community component ($n = 7$). The design called for the delivery of the curriculum to all students enrolled at the non-control schools and pre- and post-program survey of all students. Follow-up survey of all students was at immediate, 12-, 24-, 36-, 48-, and 60-month post-program.

Subjects

1867 students were eligible at pretest, and 1578 of them were consented and completed the pretest survey. To increase the sample size for analysis, survey data at years 2 and 3 were combined as middle-term follow-up data, and years 4 and 5 were combined as long-term follow-up data. Among the 1578 subjects with pretest measures, 1047 (66%) and 725 (46%) subjects had middle- and long-term follow-up data, respectively. A total of 530 subjects (34%) had complete data at all 4 time points: pretest, short-term, middle-term, and long-term.

Data collection

The data collection methods used in Project TND were described in detail in a previous 1-year outcomes paper (1). The majority of follow-up students were surveyed by telephone interview (year 1: 77%; year 2: 82.5%). Follow-up surveys for year 3 to year 5 were administered by telephone interviews only. Telephone surveys were used because research with groups including high-risk youth has shown that this approach is a successful method of reaching subjects who are not accessible through other means (McCuller et al., 2002). Telephone surveys yield much higher rates of completion than mail surveys, and most research shows that they lead to negligible differences in responses compared to face-to-face interviews (McCuller et al., 2002; Miller and Rollnick, 1991).

Measures of substance use

The primary outcome measure was last 30-day substance use. Questions were directed to frequency of use of cigarettes, alcohol, marijuana, cocaine (crack), hallucinogens (LSD, acid, mushrooms), stimulants (ice, speed, amphetamines), inhalants (rush, nitrous), and other drugs (depressants, PCP, steroids, heroin, etc.). Responses to the last five substance categories (cocaine through other substances) were summed to form a hard drug use index (Cronbach's alpha at pretest = 0.82) (Sussman et al., 1998). Data from years 2 and 3 and years 4 and 5 were combined separately to form a substance use measure for middle- and long-term follow-up durations, respectively. The combination was conducted such that when measures were available from both surveys, the maximum value was used; when there was only one survey available for that time point, the value from that survey was used as the value at that time point.

Analytic method

From the pretest measures in the present study, the intraclass correlation coefficients for cigarettes, alcohol, marijuana, and hard drugs were 0.08, 0.01, 0.1, and 0.01, respectively. In order to properly compute P values for statistical tests of differences between groups, multilevel random coefficients analytic models were applied because of the clustered random assignment (Murray et al., 1996).

Prediction of level last 30-day cigarette, alcohol, marijuana, and hard drug use from pretest use level, program condition, schools nested within condition, method of follow-up collection, and the interaction between pretest level of use and condition was conducted (Murray et al., 1996). Aside from calculating an overall condition effect ($df = 2,18$), two a priori orthogonal condition mean contrasts were calculated: the classroom-only program intervention condition versus the standard care control condition and the classroom plus school-as-community condition versus the classroom-only condition (each with $df = 1,18$). Mean comparisons were evaluated at $P < 0.05$, one-tailed, since directional hypotheses were stated.

Results

Out of the pretest sample of 1578 consented subjects, short-term, middle-term, and long-term follow-up data were successfully collected and analyzed for 1074, 1047, and 725 subjects, respectively. Subjects at pretest ranged from 14 to 19 years of age (mean age (SD) is 16.8 (0.9) years), while 55.4% were male. In addition, 31.6%, 49.5%, 9%, and 9% of subjects were White, Hispanic, African American, and other ethnicity, respectively. While mean age increased 1 year per year of survey with a consistent SD and percent male failed to vary, ethnicity varied slightly over time. The percentages were 33.8%, 49.8%, 8.2%, and 8.2% in short-term, 33.1%, 50.4%, 7.6%, and 8.9% in middle-term, and 34.5%, 50.8%, 6.1%, and 8.6% in long-term follow-up sample, respectively.

Attrition

The retention rates in the standard care, classroom only, and the classroom plus school-as-community conditions were 67%, 66%, and 71% for short-term, 69%, 64%, and 67% for middle-term, and 49%, 43%, and 47% for long-term follow-up. These attrition rates were not significantly different across conditions (all P's > 0.1). The comparability of 10 behavioral and demographic measures of interest at pretest between the initial sample and the retained samples was tested using a series of t tests. No significant differences