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Efficacy of a Self-Administered Home-Based Parent Intervention on Parenting Behaviors for Preventing Adolescent Substance Use

Kenneth W. Griffin,

Department of Public Health, Weill Cornell Medical College, 402 East 67th Street, New York, NY 10065, USA

Jessica Samuolis, and

National Health Promotion Associates, 711 Westchester Avenue, White Plains, NY 10604, USA

Christopher Williams

National Health Promotion Associates, 711 Westchester Avenue, White Plains, NY 10604, USA

Abstract

A growing body of literature suggests that parenting practices characterized by careful monitoring, firm and consistent limit setting, and nurturing communication patterns with children are protective against adolescent substance use and other problem behaviors. Family-based prevention programs that promote these behaviors can be an effective way to prevent adolescent substance use. However, low participation rates remain problematic for many such programs, particularly programs that require parents to attend scheduled meetings outside the home. The purpose of this study was to determine the efficacy of a newly developed substance use prevention program when self-administered at home by parents of middle school students. As part of a randomized trial, 338 parents of middle school students either received the parent prevention program or served as control group participants. Parents completed self-report surveys at home that assessed parenting behaviors at pre-test, post-test, and one-year follow-up time points. A series of mixed model ANCOVAs were conducted, examining the post-test and one-year follow-up means for the parent outcomes, controlling for pre-test levels on these outcomes. Analyses showed that at the post-test assessment, intervention parents reported significant increases relative to controls in appropriate role modeling, disciplinary practices, family communication, and parental monitoring skills. At the one-year follow-up assessment, intervention effects on family communication skills remained significant and effects on parental role modeling were marginally significant. This study shows that a theoretically rich prevention program can be effectively self-administered by parents at home and improve key parenting skills that have been shown to prevent adolescent substance use.

Keywords

Parenting; Prevention; Intervention; Adolescent; Substance use

Correspondence to: Kenneth W. Griffin.

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Introduction

Experimentation with substance use often begins during the early years of adolescence, typically in the context of one's peer group with substances that are readily available (e.g., cigarettes, alcohol, and inhalants). Through the subsequent years of adolescence and young adulthood some young people experiment or become regular users of a broad range of substances including alcohol, tobacco, marijuana, other illicit drugs, or the non-medical use of prescription and over-the-counter drugs. All national epidemiologic datasets demonstrate that prevalence rates of substance use are low in the early years of adolescence and become progressively higher at each subsequent age category. Indeed, there are stark differences in prevalence rates of most substances when comparing 12 and 18 year olds. In 2007, less than 1% of 12 year olds reported cigarette smoking or binge drinking in the past month, yet almost 30% of 18 year olds reported each of these behaviors (Substance Abuse and Mental Health Services Administration [SAMHSA], 2008). Similarly, prevalence rates for inhalants, illicit drugs, and the non-medical use of prescription medications were under 3% among 12 year olds, yet 21% or more of 18 year olds reported use of these substances. Longitudinal studies following cohorts of adolescents over time show a rapid upward trajectory in substance use behaviors over the course of adolescence, once use is initiated (Wills et al. 2005). The increase in substance use during adolescence is an important public health concern because of the potentially serious consequences of substance use and abuse, including a variety of academic, social, and psychological problems that can interfere with normative developmental processes (Newcomb and Locke 2005). Thus, it is critically important that efforts to prevent youth substance use begin during early adolescence, prior to the onset and escalation of use.

Several individual, family, and community-level variables are important in the etiology of adolescent substance use and abuse (Scheier 2010). Individual level factors include cognitive, attitudinal, social, personality, pharmacological, biological, and developmental factors (Swadi 1999). Peer pressure to engage in substance use and exposure to pro-drug messages in the media are key risk factors. Family-level factors associated with increased risk for substance abuse among adolescents include poor parental monitoring; lack of firm and consistent limit setting; lack of security, trust, warmth, and open communication in parent-child relationships; harsh or inconsistent disciplinary practices; and disruptions in family life (Wills and Yaeger 2003). Community-level risk factors include community disorganization, high levels of transition and mobility, norms and laws favorable to substance use, and availability of substances (Grube 2010; Hawkins et al. 2004; Hays et al. 2003).

Although risk and protective factors are numerous and occur at multiple levels of influence, it is well-recognized that family factors are central in the etiology of adolescent substance use. Thus, helping families to build skills related to youth substance use prevention represents an important and viable means to address this public health issue. For example, parental monitoring has been found to be protective and negatively associated with adolescent substance use and other risk behaviors (DiClemente et al. 2001; Li et al. 2000). Parenting skills that increase family bonding and communication are also protective factors for adolescent substance use (Lochman and van-den-Steenhoven 2002). Parental behaviors

and attitudes specific to substance use have a powerful influence on children. When parents refrain from alcohol, tobacco, or other drug use, or when they communicate that these behaviors are not acceptable or normative, their children are less likely to smoke, drink alcohol or use other drugs (Andrews and Hops 2010). Furthermore, research has shown that it is important that parents discuss the issue of substance use with their children, set family rules regarding substance use, and discuss the consequences of breaking those rules (Harakeh et al. 2005).

Due to the importance of parenting behaviors on adolescent substance use, a variety of parent- or family-based prevention programs have been developed. These interventions can be classified as either universal programs primarily addressing parent and family skills training and education, or selected and indicated programs that include brief family therapy or in-home visitation and family support models (Kumpfer et al. 2003; Lochman and van-den-Steenhoven 2002; Peterson et al. 2007). Universal programs typically include training in family and parenting skills. The focus of these interventions vary somewhat with the age of the target child or adolescent and typically address ways to nurture, bond, and communicate with children; help children develop prosocial skills and social resistance skills; provide instructions to parents on rulesetting and techniques for monitoring children's activities; and help children develop skills to reduce aggressive or antisocial behaviors. These programs include sessions for the parent or sessions with parents and children together. In general, the goals of these programs are to improve family functioning, communication, and enhance parenting skills for developing, discussing, and enforcing family policies on substance use.

Several universal prevention programs for parents and families have been shown in rigorous evaluation studies to produce positive effects on parent and child outcomes. One example is Parents Who Care (PWC), which is designed to impact the risk and protective factors associated with substance abuse and other problem behaviors for families with early adolescents. The PWC program is based on the Social Development Model (Hawkins and Weiss 1985), which asserts that when youth are provided with the opportunity and skills to engage in conforming activities and are positively reinforced for these behaviors, this will lead to attachment to conventional others and a belief in the conventional order. These social bonds to conventional society in turn inhibit the association with delinquent peers and subsequent delinquent behavior including substance use. The Social Development Model recognizes that the family is a key socializing agent, in addition to the school and community. The objectives of PWC are to provide education and skill-building to promote positive experiences of involvement for youth (i.e. involvement in the family, community) along with recognition and positive reinforcement. The universal, family skills training program components include a seven-chapter workbook and corresponding videotapes taught by a trained facilitator. A recent evaluation of the program found reduced favorable attitudes toward substance use at a 24-month follow-up in a sample comprised of White and African-American families for both group administered and home self-administered intervention groups compared to controls (Haggerty et al. 2007). Additional findings were that the chances of initiating sex or substance use were reduced by 70% or more among African-American adolescents in the group and home administered conditions compared to controls.

Another program is the Iowa Strengthening Families Program: For Parents and Youth 10–14 (SFP 10–14), a universal, SAMHSA model program for families with a 10 to 14 year old child. Based on biopsychosocial vulnerability, resiliency, and family process models, SFP 10–14 is designed to reduce youth substance use and aggression and increase school success. The seven two-hour sessions (with optional booster sessions) focus on parenting factors such as parent–child bonding, parental monitoring, and promoting positive child involvement. The program content for the child focuses on resisting peer influences to use substances. In a longitudinal randomized controlled trial of SFP 10–14, youth who received the program reported lower levels of alcohol, cigarette, and marijuana use at the four-year follow-up, relative to controls (Spath et al. 2001). Intervention youth also reported lower levels of aggressive and destructive conduct compared to control group participants at the four-year follow-up (Spath et al. 2000).

A central challenge in promoting family-based preventive interventions lies in the effective recruitment and retention of participants. Many existing parent-focused prevention programs are limited because these programs require parents to attend scheduled workshops outside of the home. However, an intervention that can be self-administered by parents at home may offer increased convenience and therefore increase participation. In the present study, we evaluated the Life Skills Training (LST) Parent Program, a recently developed intervention designed to address family-level risk factors for youth substance use. In this study, we tested the efficacy of the program when self-administered by parents at home.

Method

Procedure

As part of a larger randomized trial, middle schools were randomly assigned to either receive the LST Parent Program or serve as controls. Parents of middle school students were sent letters home from school with their children describing the study and outlining what was required to participate. Informed consent was obtained from all participants and institutional approval for research involving human subjects was obtained. Participating parents ($N = 338$) completed surveys at home at the pre-test, one-month after the end of intervention, and one-year later. Surveys measured self-reported parental substance use norms, parental modeling of substance use, communication of a clear anti-drug use message to children, parental monitoring, and parental discipline practices. Parent identification codes were used instead of names to emphasize the confidential nature of the surveys.

Sample

The sample of parents ($N = 338$) was predominantly female (91%), married (81%) or divorced (12%), and White (94%). The sample was highly educated, with the majority of respondents (61%) reporting some college education or more. The average age of parents was 41 years. Approximately 78% of parents agreed to participate in the study and 66% were retained over the course of the study, until the one-year follow-up.

Prevention Program

The LST Parent Program is a 15-session preventive intervention that consists of a parenting skills DVD and a written guide that contains “homework” assignments for parents as well as the family as a whole. The program was designed to be flexible in its delivery and can be used as part of traditional facilitated parenting workshop. However, because it can be difficult to involve large numbers of parents in standard interventions that require in-person meetings, the LST Parent Program was also designed to be self-administered by parents in the home setting. Written instructions to assist parents in self-administering the program are reviewed at the beginning of the DVD component. The program content is divided into four easy-to-use sections. First there is an introductory section that provides an overview of issues related to adolescent substance use and abuse. The second section focuses on protective family factors, providing information and skills training activities to help parents be good role models for their child, convey a clear anti-drug message, and engage in effective family communication and appropriate parental monitoring. The third section focuses on general life skills, and provides parents with information and engaging activities to promote personal self-management and social skills in their child. The fourth section provides a comprehensive listing of resources to help parents seek out additional information. Similar to the model Life Skills Training (LST) school-based substance abuse prevention for middle school students (Botvin et al. 1995), the LST Parent Program is designed to be implemented over a 15-week time period. Parents learn specific information on how to best reinforce the skills their children learn in the LST school-based program, including information and exercises that promote personal self-management skills such as self-esteem, decision-making, goal setting, and coping with anxiety, along with key social skills and specific drug-related social resistance skills. While the LST Parent Program format complements the LST Middle School program, the parent program was also designed to be implemented independent of school-based prevention programming.

Measures

The parent self-report outcome measures were developed specifically for this study by a group of experts in the substance use prevention field and were designed to be closely aligned to the parent program intervention content. First, an item pool was generated based on a review of the literature, existing scales assessing relevant parenting constructs, and the intervention content. Second, the item pool was reviewed for face validity by a committee of experts from the fields of adolescent substance abuse prevention and health education, along with two senior research scientists and a statistician. Items were retained in the final scale if they were conceptually consistent with the relevant construct (as determined by expert review) and were empirically supported based on adequate inter-item correlations, item-total correlations, and measures of reliability (described below).

The parent survey included the following scales (1) Parental Role Modeling, a scale that included seven items assessing the frequency with which parents modeled appropriate behaviors such as demonstrating positive self-esteem and standing up for one's own rights; (2) Parental Discipline, a scale that included seven items assessing the frequency with which parents engaged in disciplinary behavior with their child, such as enforcing clear rules and reinforcing positive behaviors; (3) Parental Communication, a five-item scale that assessed

the frequency with which parents talked to their child about important issues and whether parents made themselves available for open communication; (4) Parental Monitoring, a four-item scale that assessed the frequency with which parents kept track of their child's whereabouts and daily activities; and (5) Anti-Drug Message, a five-item scale assessing the frequency with which parents told their child that they do not want them to become involved in substance use. Response options for all scales included Never (1), Seldom (2), Sometimes (3), Often (4), and Always (5). The parent survey also included standard survey items for collecting demographic data on gender, date of birth, family structure, race, education level, and salary range. A series of questions were also included to assess parents' perceptions of the feasibility, acceptability, and appropriateness of the LST Parent Program.

Several reliability statistics were calculated for the parent scales at the pre-test assessment. Cronbach Alpha reliability is a model of internal consistency based on the average inter-item correlation. Guttman split-half reliability splits the scale into two parts and examines the correlation between the parts. The Spearman-Brown split-half reliability is useful for scales with an odd number of items because it calculates two coefficients, one assuming equal halves and one not assuming equal halves. Table 1 shows the descriptive statistics and reliabilities for the measures at the pre-test assessment and indicates that each of the scales had good to excellent psychometric properties.

Results

We conducted several analyses to examine the efficacy of the LST Parent Program on parent outcomes. Because assignment to intervention condition was made at the school level, we examined intervention effects using multilevel (mixed model) analyses of covariance (ANCOVA) using SAS PROC MIXED to control for clustering of parents within schools. Failure to correct for the magnitude of clustering can bias estimation of program effects and lead to false positives, thereby threatening the internal validity of a study (Murray 1998). Intervention effects were assessed by examining the adjusted mean difference in the parenting outcomes at the post-test and one-year follow-up, with variation among schools nested in each condition modeled as a random effect. In the mixed model ANCOVAs independent variables were the program variable (1 = intervention, 0 = control) and pre-test scores were included as covariates in order to examine change over time via the analysis of partial variance (Cohen and Cohen 1983).

At the post-test assessment, findings indicated that intervention parents reported significantly higher scores for role modeling behavior, $F(1,210) = 4.30, p < .039$, parental disciplinary practices, $F(1,209) = 4.66, p < .032$, parental communication, $F(1,210) = 5.23, p < .023$, and parental monitoring, $F(1,208) = 8.74, p < .004$, compared to parents in the control group, as shown in Table 2. The average change scores from pre- to post-test for role modeling behavior for the intervention and control groups, respectively, were .13 and .03; for parental disciplinary practices: .12 and -.04; for parental communication: .23 and .03; for parental monitoring: .06 and -.07; and for setting an anti-drug message: .10 and .01.

At the one-year follow-up assessment, intervention parents reported significantly higher scores for parental communication, $F(1,214) = 8.12, p < .005$, and marginally significant

higher scores for parental role modeling behavior, $F(1,214) = 3.04, p < .082$, compared to parents in the control group, as shown in Table 3. The average change scores from pre-test to one-year follow-up for role modeling behavior for the intervention and control groups, respectively, were .21 and .14; for parental disciplinary practices: .14 and .04; for parental communication: .27 and .07; for role modeling behavior: $-.01$ and $-.03$; and for setting an anti-drug message: .14 and .13. In sum, the results showed that parents exposed to the LST Parent Program had better parenting skills relevant to substance use prevention compared to control group parents not exposed to the program, and selected intervention effects persisted for up to a year after the intervention.

Discussion

The life skills training parent program is a self-contained intervention consisting of a parenting skills DVD and a written guide that contains parenting activities and family homework assignments. The program is designed to be implemented over a 15-week period either as part of a facilitated workshop or self-administered by parents at home. In this longitudinal controlled study testing the intervention when self-administered at home, findings indicated that the LST Parent Program produced positive changes on several parenting outcome variables at the post-test assessment in the intervention group participants. These included significantly higher scores for role modeling behavior, parental disciplinary practices, family communication, and parental monitoring skills. Effects at the one-year follow-up assessment remained significant for family communication and marginally significant for role modeling behavior. In addition, the LST Parent Program was viewed by participating parents as a viable home-based method for improving skills that are associated with reductions in early stage substance use. Parents rated the set of intervention materials as high in quality and feasibility and appealing to both parents and youth.

Most preventive interventions involving families take place in meetings outside of the home. In a review of the literature on these interventions, attendance rates were found to be highly variable, with most studies recruiting fewer than 50% of parents and retaining even fewer (Spoth and Redmond 2000). These low levels of participation and retention are significant limitations because attendance and ongoing participation are strongly related to intervention outcomes. Barriers to engagement in preventive interventions for families include time demands and scheduling issues, childcare or babysitting needs, and issues related to participating in research such as resistance to being studied and questions about the legitimacy of the research (Spoth and Redmond 2000). Although steps can be taken to address some of these issues, research has shown that maintaining the active participation of parents is difficult even when logistical issues are addressed directly. For example, in a study examining a family-centered intervention for rural African-American families, Brody et al. (2006) took several steps to address logistical issues that might have prevented parents from attending. The researchers served dinner and provided transportation and child care services. Nevertheless, only 44% of families attended all seven sessions of the program. Other limitations of preventive interventions that take place outside the home include the costs of training providers and renting meeting space. It is also possible that some parents would not participate in programs outside the home in order to avoid any perceived “stigma” associated with needing help with parenting. Participation rates in the home-based program used in the

present study were over 75% and substantially higher than in many intervention studies that take place outside the home. Prevention materials that can be self-administered in the home may eliminate many of the logistical obstacles and other deterrents that keep parents from participating in interventions outside the home.

There were several strengths to the present study, including random assignment of parents to intervention condition, the use of psychometrically validated survey measures developed to correspond to the intervention content, and data analysis techniques that controlled for clustering of parents and children within schools. The limitations of this study include the limited generalizability of the results due to the homogenous sample of middle class, well-educated, White families. Future research is needed to assess the efficacy of the program in more diverse samples of parents, and more research is needed to better understand the active ingredients of this and other parent- and family-based prevention programs in order to enhance their potency. More generally, it is important that future work identifies effective methods to encourage less motivated and higher risk families to participate in preventive interventions, and to what extent self-administered, home-based prevention programs can help to increase participation among these families.

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Table 1
Descriptive statistics and reliabilities for parent measures at pre-test assessment

	Items	M	SD	Cronbach alpha	Guttman split-half	Spearman-Brown split-half	Test-retest *
Parental role modeling	7	4.24	0.45	.786	.719	.736	.777
Parental discipline	7	4.10	0.48	.826	.758	.764	.665
Parental communication	5	3.96	0.67	.790	.594	.668	.721
Parental monitoring	4	4.86	0.29	.731	.631	.767	.550
Anti-drug message	5	4.55	0.54	.875	.833	.874	.653

* Test-retest correlations based on control group participants only ($N = 192$), over 15 weeks

Table 2
Adjusted means for parenting variables at post-test assessment

	Intervention parents		Control parents		F	df	p
	M	SE	M	SE			
Parental role modeling	4.26	0.04	4.16	0.03	4.30	1,210	.039
Parental discipline	4.19	0.05	4.06	0.04	4.66	1,209	.032
Parental communication	4.18	0.06	4.00	0.05	5.23	1,210	.023
Parental monitoring	4.91	0.04	4.79	0.02	8.74	1,208	.004
Anti-drug message	4.51	0.07	4.41	0.06	1.19	1,209	.277

Covariates for all analyses were the pre-test score; *p*-values represent two-tailed significance levels

Table 3
Adjusted means for parenting variables at the one-year follow-up assessment

	Intervention parents		Control parents		<i>F</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>			
Parental role modeling	4.34	0.03	4.26	0.03	3.04	1,214	.082
Parental discipline	4.21	0.03	4.14	0.03	2.47	1,212	.117
Parental communication	4.26	0.06	4.04	0.05	8.12	1,214	.005
Parental monitoring	4.84	0.02	4.83	0.02	0.11	1,213	.739
Anti-drug message	4.55	0.04	4.55	0.04	0.01	1,213	.957

Covariates for all analyses were the pretest score; *p*-values represent two-tailed significance levels