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Toward Dissemination of Evidence-Based Family Interventions: Maintenance of Community-Based Partnership Recruitment Results and Associated Factors

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Abstract

A major challenge in the dissemination of evidence-based family interventions (EBFIs) designed to reduce youth substance use and other problem behaviors is effective and sustainable community-based recruitment. This understudied topic is addressed by a preliminary study of 14 community–university partnership teams randomly assigned to an intervention condition in which teams attempted sustained implementation of EBFIs with two cohorts of middle school families. This report describes attendance rates of recruited families maintained over time and across both cohorts, along with exploratory analyses of factors associated with those rates. When compared with community-based recruitment rates in the literature, particularly for multisession interventions, relatively high rates were observed; they averaged 17% across cohorts. Community team functioning (e.g., production of quality team promotional materials) and technical assistance (TA) variables (e.g., effective collaboration with TA, frequency of TA requests) were associated with higher recruitment rates, even after controlling for community and school district contextual influences. Results support the community–university partnership model for recruitment that was implemented in the study.

Keywords

community team recruitment; family-focused preventive intervention; community-university partnerships

The high prevalence rates of youth substance use, delinquency, and other risky behaviors have spurred the development of family-focused preventive interventions to reduce such behaviors and enhance positive youth development (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 1998; Greenberg, Domitrovich, & Bumbarger, 2001; Jamieson & Romer, 2003). Earlier reports have summarized the conditions under which family-focused interventions can be expected to

produce positive results. These conditions include the application of theory-based interventions addressing established risk and protective factors, appropriate developmental timing, incorporation of empirically supported skills-training techniques, and effective strategies for engaging families (see National Institute on Drug Abuse, 1997; Spoth, Redmond, & Shin, 2001). Family-focused interventions, including the intervention addressed in the present study, have shown positive long-term outcomes on adolescent substance use and other problem behaviors in earlier prevention trials (Spoth & Redmond, 2002; Spoth, Redmond, & Shin, 2000b; Spoth et al., 2001).

Although there are now available evidence-based family interventions (EBFIs) for general populations, there has been limited dissemination of these interventions, reducing their potential public health impact. A necessary step in achieving a public health impact is a sufficient level of participation among families in the general population. Community-based partnerships and teams have become increasingly popular as a means of dissemination of evidence-based interventions among general populations (Butterfoss, Goodman, & Wandersman, 1996; Kumpfer, Turner, Hopkins, & Librett, 1993; Minkler & Wallerstein, 2002). There is, however, a paucity of research on the potential effectiveness of local teams in recruiting for and implementing evidenced-based interventions (Meek, Lillehoj, Welsh, & Spoth, 2004). The current article reports an analysis using data from 14 community teams to investigate community team recruitment effectiveness and factors that influence this effectiveness.

Evaluating Community-Based Team Recruitment

In placing the literature on family recruitment in perspective, it is important to define the characteristics of the community-based recruitment under study that distinguish it from other types of recruitment efforts. Broadly speaking, three basic types of family recruitment are represented in the literature. The most common type presented in the literature is that supported by research grants and conducted by university-based research staff under the direct supervision of scientists (e.g., using mailings combined with computer-assisted telephone recruitment). A second type is one that entails community-based recruitment conducted completely independent of a research project or any university-based support. A third type, represented in this study, involves a hybrid of the first two types; that is, it consists of community-based recruitment by a local community team, consisting mostly of local community volunteers who have primary responsibility for recruitment. Support for community team recruitment efforts is provided by technical assistants with prevention programming expertise who are under the direction of university-based scientists; there is no direct supervision of community teams by scientists or other research staff.

In general, the literature on recruitment for evidence-based family and other preventive interventions documents substantial challenges, such as schedule demands (Meek et al., 2004; Mihalic & Irwin, 2003; Spoth & Redmond, 2000, 2002). These barriers are especially difficult to surmount when the intervention is seeking participation from general population families, such as in the current case, wherein all families in the community with children who were entering middle school (sixth grade) were considered eligible. In contrast, targeted or higher risk families who are part of “captive audiences” or who meet special selection criteria (e.g., families already enrolled or otherwise participating in a clinic or social services program) may be easier to access or persuade and can contribute to relatively higher recruitment rates (see Cunningham et al., 2000; Heinrichs et al., 2005).

A review of the literature failed to reveal any studies or reports of community-based team recruitment for universal family-focused interventions, as noted in an earlier report on partnership recruitment activities, enrollment, and related issues with an initial cohort of

families from the study reported here (Meek et al., 2004). There are only limited data on community-based recruitment for other types of interventions (e.g., physical health promotion). Most in evidence are studies reporting rates (either rates of initial sign-up or actual attendance) achieved by research-staff-based recruitment efforts for universal and other types of family-focused preventive interventions. Results from university-based recruitment efforts by scientific staff, however, may not generalize to more realistic community-based conditions. In addition, locally sustained, community-based recruitment is critically important to larger scale dissemination of EBFI's (Spoth & Greenberg, 2005). Therein lies its importance and advantage. Recruitment that is contingent on time-limited grant funding generated by a university and conducted solely by university-based research staff is not conducive to sustained implementation of evidence-based interventions in communities. In other words, community-based recruitment is a key element in maximizing the public health impact of universal family-focused interventions that have proven to be effective (Glasgow, Lichtenstein, & Marcus, 2003; Glasgow, Vogt, & Boles, 1999).

Extant literature indicates suboptimal recruitment or attendance rates in most research projects on universal family-focused interventions with recruitment conducted by research or other university staff. For these interventions, rates have ranged from 3% to 35% (Bauman, Ennett, Foshee, Pemberton, & Hicks, 2001; Gorman-Smith et al., 2002; Meek et al., 2004; Spoth & Redmond, 2002). Programs requiring attendance at multiple sessions conducted outside of the home tend to have rates in the lower part of that range (Meek et al., 2004), given their higher level of demands on families' time and resources. In a search for reports on community-based recruitment for preventive interventions of any kind, one of the highest quality studies from a methodological standpoint (Saunders, Greaney, Lees, & Clark, 2003) reported a 5.9% rate. The only systematic review of literature on recruitment for community-based preventive interventions uncovered was one focusing on smoking cessation programming, stating a median rate of 2% (McDonald, 1999). Generally, the penetration of preventive interventions in a given target population is less than 1% (Jensen, 2003).

The Role of Team Functioning and Technical Assistance (TA)

Concerning evaluation of community team functioning and collaboration with technical assistants, the empirical literature on community partnership recruitment factors is especially limited. There has been much variability across preventive intervention recruitment studies in the specific factors that are highly correlated with recruitment or attendance rates (Haggerty et al., 2002; Perrino, Coatsworth, Briones, Pantin, & Szapocznik, 2001); no research could be found on community team characteristics associated with effective recruitment for universal family interventions.

Although there has been limited evaluation of the effectiveness of community-based prevention partnerships (Spoth & Greenberg, 2005), there is an emerging literature on various aspects of effective partnership or community team functioning (e.g., strong task orientation, high-quality leadership, effective team communication, and quality of team meetings). These aspects of team functioning have been associated with successful completion of community team tasks, such as those concerning the conduct of various types of community improvement or intervention projects (Green & Kreuter, 2002; Hallfors, Cho, Livert, & Kadushin, 2002; Kegler, Steckler, Malek, & McLeroy, 1998; Kreuter, Lezin, & Young, 2000; Roussos & Fawcett, 2000). On the basis of this literature, measures of effective team functioning were expected to be positively correlated with higher attendance rates. In addition, team effectiveness with activities and materials development specifically directed toward recruitment (e.g., quality of recruitment activities and materials produced by teams) was expected to be strongly associated with attendance rates, given the proximity of such tasks, activities, and materials to recruitment outcomes.

A review of the dissemination literature on factors influencing quality of implementation (Mihalic, Fagan, Irwin, Ballard, & Elliott, 2002) suggested that TA received by the teams also would likely be related to attendance rates. An evaluation of evidence-based interventions implemented in 42 states (Mihalic & Irwin, 2003) found that the most important factor in implementation success was the quality of ongoing TA. Thus, we also expected that technical assistants' observations of team functioning and ratings of responsiveness to TA would positively correlate with recruitment success.

Earlier studies (e.g., Spoth & Redmond, 1995; Spoth, Redmond, Kahn, & Shin, 1997; Spoth, Redmond, & Shin, 2000a) have suggested that it is important to account for community or school district contextual factors that may indirectly influence family responses to intervention recruitment efforts. For purposes of the present study, accounting for a number of contextual factors was considered.

Population size was considered because it was expected that the greater number of families in relatively larger communities might be associated with a greater recruitment demand on local teams and suppress their recruitment rates. Earlier studies suggested that SES also might be associated with higher rates achieved in higher SES districts (see Spoth & Redmond, 2000), although earlier findings have been mixed, especially with respect to income variables (see Haggerty et al., 2002). In addition, we expected that schools in which administrators reported more policy making and related activities regarding prevention programming (i.e., a policy more favorable to prevention) might foster higher recruitment rates. Also, it was anticipated that higher levels of substance-related risk among students in the district would be associated with lower recruitment rates, possibly reflecting a higher level of acceptance of substance use and less interest in prevention programming. Finally, higher rates of participation have been associated with positive adolescent–parent attachment and are likely to be associated with attachment-related constructs, such as the quality of parent–child relations. A related variable that correlates with quality of parent–child relations (Bauman et al., 2001), family cohesion, also has been found to be correlated with family participation (Bauman et al., 2001; Cohen & Linton, 1995; Rohrbach et al., 1994).

In summary, the objectives of the present study clearly address research needs critically important to an understanding of how to better achieve larger scale impacts from evidence-based, universal family-focused interventions. More specifically, research needs underscored by the literature are addressed by the study's two objectives: (a) to evaluate the maintenance of attendance rates for universal interventions implemented by community teams over time and across two cohorts of families, vis-à-vis rates obtained by paid research staff in earlier studies, and (b) to conduct a preliminary examination of community team and TA factors that are expected to influence these attendance rates, after accounting for key community and school district contextual factors.

Method

This study is part of a larger project, the primary aim of which is to evaluate the youth competency enhancement and problem behavior reduction resulting from community implementation of evidence-based family and school interventions (Spoth, Greenberg, Bierman, & Redmond, 2004). The larger project applies a sequential cohort, randomized controlled design involving two cohorts of sixth graders and their families (hereafter Cohort 1 and Cohort 2) from 28 communities in Iowa and Pennsylvania. Communities were blocked (matched) on school district size and geographic location; they then were randomly assigned to one of two study conditions: (a) the community partnership intervention, with 7 districts from Iowa and Pennsylvania assigned to the intervention condition ($N = 14$), or (b) the comparison condition involving no project support for programming (communities continued

to provide whatever programming was usually offered). Human subjects procedures were approved by the Institutional Review Boards of Iowa State University and Pennsylvania State University.

Partnership Model

The current study used a multitiered partnership model called PROSPER (PROmoting School–Community–University Partnerships to Enhance Resilience). The PROSPER model involves a three-component community–university partnership structure that includes local community teams, a state-level university research team, and a prevention coordinating team that provides TA to community teams and serves as a liaison between the community and university teams (see Spoth & Greenberg, 2005; Spoth et al., 2004). Relatively small in size, the strategic community teams were designed to accomplish very focused intervention goals. Community-based teams were coled by a staff person based in the Land Grant University Extension System and a public school staff person. The Extension-based persons, typically called extension agents or educators, serve an outreach function for the university, disseminating information and programming generated by university-based research. In their capacity as coleaders of the PROSPER community-based teams, they serve as agents who link local team members with resources in the community and with local stakeholders who have interest in evidence-based prevention programming.

The county Extension staff person and the local public school coleader recruited other community team members, including health and social service providers, parents, and youth. Following team formation, team activities included the selection of a universal family-focused intervention from a menu of three evidence-based interventions. All teams chose the Strengthening Families Program: For Parents and Youth 10–14 program (SFP 10–14), described below. A second primary activity was the recruitment of families into the intervention. In conducting these activities, local teams received support from the intermediate-level coordinator team—composed of prevention coordinators (PCs) based in the university Extension system. PCs provided continuous, proactive TA, as well as documentation of ongoing partnership processes. PCs received resources, support, and supervision from the state-level team, including university-based prevention scientists. The primary functions of this state-level team were to provide (a) scientific guidance concerning preventive intervention selection and implementation, (b) administrative oversight, (c) input on data collection and analyses, and (d) project reports.

It is worth reiterating that this partnership model represents a hybrid of the two types of recruitment models described earlier, one in which recruitment is entirely conducted by community volunteers without any direct or indirect scientist involvement and a model whereby recruitment is entirely conducted by paid research staff directly supervised by university-based scientists. Although the community teams had primary responsibility for family recruitment and program implementation, they did receive TA and support from PCs who, in turn, received support from and had oversight by university-based prevention scientists.

Community Selection and Assignment

Community and participant recruitment followed several steps. First, a pool of school districts in Iowa and Pennsylvania that met initial eligibility criteria was established. Eligibility criteria for communities considered for the project were (a) school district enrollment from 1,300 to 5,200 and (b) at least 15% of the student population eligible for free or reduced-cost school lunches. Communities in which more than half of the population was either employed by or attending a university were excluded, as were communities involved in other university-affiliated prevention projects with youth. These eligibility criteria allowed for a representative sample of communities within the targeted school district enrollment range, including

communities with an appreciable percentage of families in the lower SES range. Two communities (one per state) withdrew during the first 12 months and were replaced. The 28 study communities consisted of rural towns and small cities across the two states. Populations, based on the 2000 census, ranged from 6,975 to 44,510.

Next, availability of qualified Extension and public school system personnel to serve as community team coleaders was considered. Initial contacts were made with regional or county-level Extension personnel about their project interest. In districts with Extension personnel available, project investigators explained the project in more detail. Subsequently, project staff and Extension personnel met with local school district administrators to describe the project's partnership model and research design. Communities that had (a) a qualified county Extension staff person, (b) a school district willing to participate, and (c) a qualified school staff person to serve as coleader were recruited to participate.

Family Intervention

The SFP 10–14 (Molgaard, Kumpfer, & Fleming, 1997) is based on empirically supported family risk and protective factor models (DeMarsh & Kumpfer, 1986; Kumpfer, Molgaard, & Spoth, 1996; Molgaard, Spoth, & Redmond, 2000). The long-range goal of SFP 10–14 is to reduce youth substance use and other problem behaviors. Intermediate goals include the enhancement of parental skills, as well as youth prosocial and peer resistance skills.

The seven SFP 10–14 program sessions were conducted once each week for 7 consecutive weeks when the youth were in the 2nd semester of sixth grade. Each session included a separate, concurrent 1-hr parent and youth skills-building curriculum, followed by a 1-hr conjoint family curriculum in which parents and youth practiced skills learned in their separate sessions. Program sessions were offered in local community facilities outside of school hours. Each session required three facilitators, one for the parent session and two for the youth session. A detailed description of program content and format can be found at www.extension.iastate.edu/sfp/. Outcomes of earlier randomized studies are summarized at www.ppsi.iastate.edu; also see, for example, Spoth et al. (2000b, 2001).

Trained observers completed intervention observation forms for a subset of parent, youth, and family sessions. Observational data confirmed high-quality implementation, with a level of adherence to manualized content that exceeded 90% on average.

Recruitment Strategies

Earlier findings indicate that prevention researchers, unfamiliar with the idiosyncrasies of local communities, might make incorrect assumptions concerning effective family recruitment strategies (e.g., El Ansari, Phillips, & Zwi, 2002; Saunders et al., 2003; Spoth & Redmond, 2000). As part of the TA noted in the earlier PROSPER model description, information on effective, generic recruitment strategies was communicated to the local teams in a workshop format. PCs then followed up with individual team consultations, and final recruitment strategies were selected in each community by the local team, in consideration of the local cultural norms, values, and needs of resident families.

Before recruiting Cohort 1 families into SFP 10–14, each of the 14 PROSPER teams completed an assessment of potentially available resources and activities for recruitment. Those considered included general publicity (e.g., local newspaper feature stories and advertisements), information in church bulletins and strategic placement of program posters and promotional materials in the community, radio and cinema commercials, cable TV public service announcements, and school-focused efforts (letters from administrators, displays at back-to-school nights, poster contests).

In practice, families were recruited through a variety of strategies, such as a SFP 10–14 promotional video and informational displays at school parent–teacher conferences and middle school registration, phone and mail invitations to individual families, classroom presentations, dissemination of information through the Cooperative Extension Service, school newsletters, and distribution of promotional items (e.g., pencils and magnets). Further, each local PROSPER team shared information with other teams regarding the effectiveness of strategies for family recruitment. Community groups that actually assisted in family recruitment included churches, service clubs, PTA–PTO groups, youth organizations (e.g., Scouts, 4-H), Extension councils, teachers–school counselors, service agencies, and a PROSPER speaker’s bureau. All PROSPER teams included three common elements in their SFP 10–14 family recruitment plans (Meek et al., 2004): Recruit youth in the schools; provide community information about the project; and recruit parents, including both general publicity and individual contacts.

One of the most helpful strategies identified by previous research (e.g., Spoth & Redmond, 2000) involved designing effective participation incentives. Although each local team made its own decisions regarding the types of incentives used, as well as eligibility guidelines, the suggested PROSPER guidelines included the following types of incentives for family participation in SFP 10–14: (a) a \$5 parent gift for each session attended, (b) a \$3 youth gift for each session attended, (c) a \$10 family gift door prize at each session, (d) a \$25 youth graduation gift for attending four or more sessions, (e) a light meal for all participants, and (f) child care provided for each session. Although specific incentives used varied somewhat by community, anecdotal reports suggested there was limited variability in use of incentives across sites; there appeared to be no systematic variations.

In a workshop that followed recruitment of Cohort 1 families, teams in each state shared information on their most effective recruitment strategies. Prior to recruitment of Cohort 2 families (approximately 1 year following Cohort 1 recruitment), all teams reviewed the recruitment plans used for Cohort 1; considered what they had learned from their own and other teams’ experiences; and then implemented their updated, revised plans for Cohort 2 recruitment.

Data Collection From Teams

Data on team characteristics were derived from two different sources: local team members, including team coleaders, and the state-level technical assistants noted earlier (PCs). Individual team members participated in team process interviews at team formation and 6 months later (prior to initiating the intervention for the first cohort—Wave 2 data), and then 12 months later (prior to initiating the intervention for the second cohort—Wave 3). To predict Cohort 1 attendance rates, results from the Wave 2 process interviews were used; for Cohort 2, Wave 2 and Wave 3 were combined. Thus, all appropriate waves of information (i.e., those that followed baseline assessment and were reasonably proximal to the predicted outcome) were used for each cohort. Each team member interview lasted approximately 60 min. The sample of local team members at pretest included 120 individuals within the 14 communities in the two states.

The number of team member respondents in each intervention community ranged from 7 to 13, with a mean of 8.6. Respondents ranged in age from 24 to 59 ($M = 42.7$ years), and 33.3% of respondents were male. All respondents indicated completing a minimum of a high school education or GED, with 90.2% of the sample having obtained a college degree. Most (87.5%) of the sample lived in or near the school district that organized the PROSPER intervention team.

A second source of data was the PCs; data included ratings of their observations and perceptions of the effectiveness of the local teams, including effectiveness of recruitment strategies. PC

ratings were obtained from one of three different assessments: a biweekly report, a quarterly report, and a recruitment assessment. The biweekly reports were the result of biweekly telephone contacts between the PCs and the PROSPER team leaders. These telephone contacts included a set of specific questions to assess recent team leader perceptions about PROSPER-related activities. The quarterly report was completed online by the PCs and included items that assessed a range of team characteristics. The recruitment assessment was a written form completed by the PCs for each PROSPER team after recruitment for a given cohort had concluded. PCs reviewed the local team protocols, plans, and objectives; they provided ratings of the quality of plans and utilization of TA. Specifically, PCs were asked to rate the overall effectiveness and effort of the local PROSPER teams for a number of possible recruitment strategies. A total of eight PCs (four in each state) reported on their observations of the local teams.

Measures

As a result of the limited research on community–university partnerships to date, available measures of correlates examined in the current article also were limited. In cases in which no published measures were available, measures with a high degree of face validity were constructed, guided by the research team’s past published analyses of team process data with other types of partnerships (Feinberg, Greenberg, & Osgood, 2004; Feinberg, Puddy, Gomez, & Greenberg, in press) and by past work with the particular type of community–university partnerships under study (Spoth et al., 2004).

Team functioning—There were three measures of general team functioning. The first of these was team effectiveness ($\alpha = .85$, adapted from Kegler et al., 1998), which was the average of 16 items from the team process interview concerning perceptions of team cohesion, task orientation, and quality of leadership. Sample items included: “There is a strong sense of belonging in this team,” “The team leadership has a clear vision for the team,” and “There is strong emphasis on practical tasks in this team.” The second measure was meeting quality, which was from an item in the PC biweekly reports based on team leaders’ reported ratings of the average meeting quality on a 5-point scale ranging from 1 (*Poor*) to 5 (*Excellent*). This item was averaged across a year of biweekly reports for Cohort 1 and across 2 years of reports for Cohort 2. As in the case of team process reports, all available waves of data were combined for analyses concerning each cohort. The final measure of general team functioning was attitudes regarding prevention. This measure was based on a community readiness construct described by Edwards and colleagues (Edwards, Jumper-Thurman, Plested, Oetting, & Swanson, 2000). It included 2 items from the team process interview ($\alpha = .76$). An illustrative item was “School-based prevention programs are a good investment.” Both items were rated on a 4-point scale ranging from 1 (*Not at all True*) to 4 (*Very True*).

Two additional measures of team functioning specifically addressed recruitment effectiveness. These measures were based on data from the PC recruitment assessment. PCs rated the quality of promotional–informational materials targeting each of three groups—parents, youth, and the community in general—for each community. These three items were rated on a 5-point scale ranging from *Very Ineffective/Minimal Effort* (1) to *Very Effective/A Great Deal of Effort* (5) and were averaged ($\alpha = .40$).¹ The efforts to contact families measure was based on

¹The relatively low reliabilities for the measures of district substance use and quality of promotional–informational materials warrant explanation. The primary reason that these reliabilities were somewhat low is that both are based on only three items; district substance use, in particular, is based on three dichotomous items, with one of the items having a very low base rate. Under these circumstances, reliability would be expected to be modest. In addition, in the case of the promotional–informational materials variable, each of the three items was intended to measure a separate domain. The scores for each of the domains, however, were not necessarily expected to be strongly correlated. Nonetheless, each was expected to be similarly related to recruitment success; summing the scores for the three domains provides an indication of the overall quality of the materials.

one item in the PC recruitment assessment that asked, “Were efforts made to talk to EVERY 6th grade family?”

TA—Two measures were used to assess the nature and quality of the ongoing TA received by the teams. The effective TA collaboration measure was calculated by taking the average of seven items reported quarterly from the perspective of the PCs ($\alpha = .90$). These items included “Cooperation with technical assistance” and “Timeliness of reports, applications, materials,” rated on a 7-point scale ranging from 1 (*Poor*) to 7 (*Excellent*). Finally, the frequency of TA requests was based on the number of TA requests, as reported by PCs in their biweekly reports.

Contextual variables—The contextual variables were selected on the basis of the literature review summarized in the introduction. They included community population, community SES, supportive district policy, parent–child relationship quality, family cohesion, and level of student substance use. Using a stepwise regression approach, community attendance rates were regressed on the contextual variables, in order to identify a subset of community contextual variables that would be included as control variables in subsequent partial correlation analyses. Because this is a preliminary investigation with a sample size of 14, a conservative inclusion and retention criterion ($p < .15$) was selected to limit the number of independent variables. Variables meeting this criterion for either cohort were selected as control variables. The result was the selection of three contextual control variables, as described later. As expected, the selected variables were more highly correlated with attendance rates, ranging from .25 (level of student substance use) to .47 (educational attainment) for Cohort 1 and from .29 (substance use level) to .33 (education) for Cohort 2. All other contextual variables showed lower correlations with attendance rates, with one exception (Cohort 2 family cohesion) that was considered artifactual because of outlying values observed in one school.

Educational attainment was gathered from U.S. census data and assessed as the percentage of adults in the community that had a post high school education. Supportive district policy was assessed by averaging two items from a school resource interview that was completed by a school district representative (average α , both cohorts = .93). For example, one item stated “In thinking about your school’s policy on alcohol, how much emphasis is placed on prevention?” The items used a 4-point scale ranging from 1 (*None*) to 4 (*A lot*). District substance use was based on three items from a community-wide, classroom-based assessment of 6th graders measuring substance initiation ($\alpha = .35$; see Footnote 1). The items included “Have you ever smoked a cigarette?” “Have you ever drank alcohol?” and “Have you ever smoked marijuana (grass, pot or hashish/hash)?”

Attendance rate was the proportion of families of sixth graders in a school district who attended at least one session of the intervention.

Analytic Procedures

All data were aggregated to the school district level. Following descriptive analyses of attendance rates, two additional steps were taken. The first step entailed examination of the full range of hypothesized correlates. That is, bivariate correlations with the attendance rates were calculated for each of the hypothesized correlates previously described. The second step entailed the analysis of partial correlations, controlling for the three aforementioned contextual variables.

Results

Attendance Rates

The proportions of total eligible families who attended at least one session are reported in Table 1. It is noteworthy that the definition of “eligible families” translates to a conservative calculation of attendance rates. That is, all families who had children attending the sixth grade (compiled during the summer preceding the school year) were considered eligible. The family program was held in the Spring semester of the school year. This broad definition included families or family members who may have been unavailable (e.g., moved to another school district) or otherwise unable to attend or benefit from the intervention (e.g., language barrier, learning disability).

Across both cohorts, 21.2% ($N = 1,334$) of families signed up and 16.9% attended at least one session (Cohort 1 = 17.5%, Cohort 2 = 16.3%). This translates to 1,064 families and an estimated 2,650 family members who attended at least one session. Notably in the current study, of the 1,064 families that attended at least one session, 975 (91.6%) also attended other sessions. These totals and the percentages by cohort are presented in Table 1.

Correlates of Attendance Rates

Table 2 presents the correlations between the team functioning variables and attendance rates. Most bivariate correlation coefficients for Cohort 1 were .5 or above, although most did not attain conventional statistical significance at the .05 level, as would be expected with a sample size of 14. All of the correlations that were statistically significant or above .5 were in the hypothesized direction. The empirically strongest category of correlates was that of team functioning specific to recruitment, particularly the quality of recruitment assessed by PCs. After controlling for the three community context factors (educational attainment, supportive district policy, and district substance use), we found that Cohort 1 partial correlations showed strong relationships between attendance rates and the quality of promotional–informational materials (positive), as well as the frequency of TA requests (negative).

Bivariate correlations for Cohort 2 were generally lower than those of Cohort 1, although most exceeded .3. One of the correlates that was significant at the .05 level for Cohort 1 was replicated in Cohort 2—the quality of promotional–informational materials. In addition, a Cohort 2 TA variable also was a significant correlate, though, in this case, the variable was effective TA collaboration. Both of the correlations remained statistically significant when controlling for community context factors in the partial correlation analysis.

Discussion

Attendance Rates and Patterns of Rates Achieved

This study demonstrated that community-based intervention teams in a range of rural towns and small cities can achieve and maintain, on average, relatively high attendance rates for evidence-based, universal family interventions, involving both parents and children in multiple sessions. To place these rates in perspective, it is noteworthy that the proportion of the total community population successfully recruited (actually attending the program) was much higher than in other community-based prevention and health promotion recruitment studies reviewed. The Saunders and colleagues (2003) study, for example, recruited only 5.9% of the seniors in that community; rates for other community-based recruitment efforts are often even lower, and, generally, target population penetration for prevention interventions does not exceed 1% (Jensen, 2002, 2003).

It also is worthy of note that the rates were at the high end of the range for recruitment into multisession, universal interventions for families conducted by research staff. It also should be mentioned that, although it would have been desirable to achieve higher rates, those that were attained approximated the rate in an earlier study that used an intent-to-treat outcome analysis (including all families eligible for the intervention, whether or not they were successfully recruited into the intervention) and showed positive effects on substance use and conduct problem reduction 4 years past baseline (Spoth et al., 2000b, 2001).

Differences among the districts in attendance rate findings observed and variability in rates across cohorts warrant comment. As represented in Table 1, district-specific rates ranged from 8.2% to 38.5% for Cohort 1 and from 7.1% to 25.2% for Cohort 2, although average rates for the two cohorts were comparable. The reasons for the variability in rates are not entirely clear, although correlational results suggest some possibilities. That is, PC biweekly reports suggested that there were differences in the locally available resources, along with differences in community-based recruitment strategies applied across the districts.

On average, there was only a small difference in community rates between the two cohorts, overall. Nonetheless, there was some variability within districts across cohorts. For example, one district went from 34.3% for Cohort 1 to 21.4% for Cohort 2, and another went from 8.2% for Cohort 1 to 15.9% for Cohort 2. These differing rates across cohorts are likely attributable to differences in recruitment strategies and resources within districts across time. Although there was only a 1-year separation between the two cohorts, it was more than ample time for changes in strategies and resources that affected recruitment outcomes.

Correlates of Rates

An emerging literature on the importance of better understanding intervention effectiveness and dissemination under real-world conditions suggests the significance of these preliminary findings (e.g., Greenberg, 2004; Glasgow et al., 2003). This emerging literature emphasizes that, in order to realize public health benefits from evidence-based interventions, the knowledge base on factors influencing effective dissemination of those interventions has to be greatly expanded, particularly concerning factors influencing local efforts to engage community residents in the interventions, as opposed to researcher-driven recruitment efforts (Glasgow et al., 1999; Spoth & Greenberg, 2005).

As expected, there were indicators of effective team functioning that were strongly correlated with attendance rates; measures of effective functioning mapped onto variables shown to be associated with community team task accomplishment in the literature reviewed. Although for different specific measures in the two cohorts, TA showed correlations in the highest range—with frequency of TA requests emerging as one of the strongest predictors in Cohort 1 and effective TA collaboration emerging as one of the strongest predictors in Cohort 2. These results support the conclusion from Mihalic and Irwin's (2003) review that the most consistently important factor in evidence-based intervention implementation success was the quality of ongoing TA. Of interest, more frequent TA requests were associated with lower attendance rates, probably because more requests occurred when teams were experiencing difficulties with their recruitment efforts. In contrast, higher ratings of effectiveness of TA collaboration were associated with higher attendance rates, possibly indicating that more effective teams had relatively fewer TA requests but received the high quality TA they needed. This pattern replicates what was found in an earlier community partnership study (Feinberg et al., 2004). Finally, as expected, measures of team recruitment-specific activities and materials most proximal to the family recruitment outcomes showed the strongest average correlations with attendance.

The differences between cohorts in attendance rate correlates observed warrant further discussion. Of importance, the same general pattern of findings for Cohort 1 was observed for Cohort 2; it would be problematic to read too much into differences in correlations across the cohorts. It is, however, worth reiterating that in the world of community-based recruitment, there is an appreciable level of change from one year to the next (in team composition, team developmental stage, and team tasks) that could reasonably be expected to influence both the specific factors that are highly correlated with recruitment outcomes and the relative strength of the correlations. Of course, the small sample size renders the analyses especially sensitive to more extreme values in individual districts.

Study Limitations and Conclusions

Limitations of this study primarily concern sample size, sample representativeness, and possible bias in a subset of the measures. The attendance rate variable was assessed at the community level; with a total sample of 14 communities, statistical power was limited (although such a sample size is relatively large by current standards in the literature). To address this issue in the current study, we compared two cohorts, to better determine the consistency of the pattern of findings.

Another important issue concerns the study sampling procedures. Results are primarily expected to generalize to the type and size of communities selected for this study; the representativeness of the sample of families successfully contacted for recruitment is unclear. In this context, it is noteworthy that Saunders et al. (2003) established that their sample was representative of the community population, despite the fact that it embodied only 5.9% of the community population. Of importance, earlier studies have shown that representative samples of families were recruited even though the percentage of the total eligible families was not high (Spoth et al., 1997; Spoth, Redmond, & Shin, 2000a). Nonetheless, this issue will be empirically evaluated in future studies.

Observation-based measures of the primary TA variables were taken prior to the attendance outcome measurement. The two recruitment-specific functioning measures (quality of promotional materials and efforts to contact families), however, were taken after outcome measurement and may have been biased by PC awareness of team outcomes. The PC recruitment assessment that included these two measures was designed to assess the actual recruitment procedures used by community teams. By necessity, this assessment had to occur after the recruitment had already been completed. Because the PCs would have had some general idea of community recruitment success at the time they rated the quality of promotional–informational materials, the related findings should be interpreted with caution. Nonetheless, there was clear variation in the quality of materials produced by teams (e.g., photocopies of typed information on colored paper vs. professional-looking brochures on “slick” paper), so it should not be assumed that reporter bias was necessarily the primary process driving PC ratings for these measures; the quality of materials produced could be a proxy for other team characteristics related to the overall quality of their recruitment effort.

In conclusion, it should be highlighted that community–university partnership teams produced relatively high family attendance rates and, also, that team functioning and collaboration with TA were associated with recruitment effectiveness. Another closing point is that the partnership structure, with its support for proactive TA, appears to have played an important role in recruitment success. In this connection, however, it is important to note that positive community results are expected to generalize only to community teams having the type of proactive TA that is central to the partnership model used in this study. Most important, this effort is part of a larger movement toward gaining practical knowledge about effective dissemination of evidence-based preventive interventions under real-world conditions, toward the end of enhanced public health impact.

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References

- Bauman KE, Ennett ST, Foshee VA, Pemberton M, Hicks K. Correlates of participation in a family-directed tobacco and alcohol prevention program for adolescents. *Health Education and Behavior* 2001;28:440–461. [PubMed: 11465156]
- Butterfoss FD, Goodman RM, Wandersman A. Community coalitions for prevention and health promotion: Factors predicting satisfaction, participation, and planning. *Health Education Quarterly* 1996;23(1):65–79. [PubMed: 8822402]
- Catalano, RF.; Berglund, ML.; Ryan, JAM.; Lonczak, HC.; Hawkins, JD. Positive youth development in the United States: Research findings on evaluations of positive youth development programs. Report to the U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation and National Institute for Child Health and Human Services; 1998.
- Cohen DA, Linton KLP. Parent participation in adolescent drug abuse prevention program. *Journal of Drug Education* 1995;25(2):159–169. [PubMed: 7658296]
- Cunningham CE, Boyle M, Offord D, Racine Y, Hundert J, Secord M, McDonald J. Tri-Ministry Study: Correlates of school-based parenting course utilization. *Journal of Consulting and Clinical Psychology* 2000;68:928–933. [PubMed: 11068980]
- DeMarsh J, Kumpfer KL. Family-oriented interventions for the prevention of chemical dependency in children and adolescents. *Prevention* 1986;18:117–151.
- Edwards RW, Jumper-Thurman P, Plested BA, Oetting ER, Swanson L. Community readiness: Research to practice. *Journal of Community Psychology* 2000;28:291–307.
- El Ansari W, Phillips CJ, Zwi AB. Narrowing the gap between academic professional wisdom and community lay knowledge: Perceptions from partnerships. *Public Health* 2002;116:151–195. [PubMed: 12082597]
- Feinberg ME, Greenberg MT, Osgood DW. Technical assistance in prevention programs: Correlates of perceived need in communities that care. *Evaluation and Program Planning* 2004;27:263–274.
- Feinberg ME, Puddy R, Gomez B, Greenberg M. Validation of Web-based survey for community coalition leaders. *Health, Education, and Behavior*. in press.
- Glasgow RE, Lichtenstein E, Marcus A. Why don't we see more translation of health promotion research to practice? Rethinking the efficacy to effectiveness transition. *American Journal of Public Health* 2003;93:1261–1267. [PubMed: 12893608]
- Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: The RE-AIM framework. *American Journal of Public Health* 1999;89:1322–1327. [PubMed: 10474547]
- Gorman-Smith D, Tolan PH, Henry DB, Leventhal A, Schoeny M, Lutovsky K, Quintana E. Predictors of participation in family-focused preventive intervention for substance use. *Psychology of Addictive Behaviors* 2002;16:S55–S64. [PubMed: 12502277]
- Green LW, Kreuter MW. Fighting back, or fighting themselves? Community coalitions against substance abuse and their use of best practices. *American Journal of Preventive Medicine* 2002;23:303–306. [PubMed: 12406485]
- Greenberg MT. Current and future challenges in school-based prevention: The researcher perspective. *Prevention Science* 2004;5:5–13. [PubMed: 15058907]
- Greenberg MT, Domitrovich C, Bumbarger B. The prevention of mental disorders in school-aged children: Current state of the field. *Prevention & Treatment* 2001;4(Article 1)
- Haggerty KP, Fleming CB, Lonczak HS, Oxford M, Harachi TW, Catalano RF. Predictors of participation in parenting workshops. *Journal of Primary Prevention* 2002;22:375–387.
- Hallfors D, Cho H, Livert D, Kadushin C. Fighting back against substance abuse: Are community coalitions winning? *American Journal of Preventive Medicine* 2002;23:237–245. [PubMed: 12406477]

- Heinrichs N, Bertram H, Kuschel A, Kessemeier Y, Sabmann H, Hahlweg K. Parent recruitment and retention in a universal prevention program for child behavior and emotional problems: Barriers to research and program participation. *Prevention Science* 2005;6:275–286. [PubMed: 16075192]
- Jamieson, KH.; Romer, D. Findings and future directions. In: Romer, D., editor. *Reducing adolescent risk: Toward an integrated approach*. Thousand Oaks, CA: Sage; 2003. p. 374–378.
- Jensen PS. Putting science to work: A statewide attempt to identify and implement effective interventions. *Clinical Psychology: Science & Practice* 2002;9:223–224.
- Jensen PS. Commentary: The next generation is overdue. *Journal of the American Academy of Child & Adolescent Psychiatry* 2003;42:527–530. [PubMed: 12707556]
- Kegler MC, Steckler A, Malek SH, McLeroy K. A multiple case study of implementation in 10 local Project ASSIST coalitions in North Carolina. *Health Education Research: Theory and Practice* 1998;13:225–238.
- Kreuter MW, Lezin NA, Young LA. Evaluating community-based collaborative mechanisms: Implications for practitioners. *Health Promotion Practice* 2000;1(1):49–63.
- Kumpfer, KL.; Molgaard, V.; Spoth, R. The Strengthening Families Program for the prevention of delinquency and drug use. In: Peters, RD.; McMahon, RJ., editors. *Preventing childhood disorders, substance abuse, and delinquency*. Thousand Oaks, CA: Sage; 1996. p. 241–267.
- Kumpfer KL, Turner C, Hopkins R, Librett J. Leadership and team effectiveness in community coalitions for the prevention of alcohol and other drug abuse. *Health Education Research* 1993;8:359–374.
- McDonald PW. Population-based recruitment for quit-smoking programs: An analytic review of communication variables. *Preventive Medicine: An International Journal Devoted to Practice & Theory* 1999;28:545–557.
- Meek J, Lillehoj CJ, Welsh J, Spoth R. Rural community partnership recruitment for an evidence-based family-focused prevention program: The PROSPER project. *Rural Mental Health* 2004;29(2):23–28.
- Mihalic, S.; Fagan, A.; Irwin, K.; Ballard, D.; Elliott, D. Blueprints for violence prevention replications: Factors for implementation success. Boulder: University of Colorado, Center for the Study and Prevention of Violence, Institute of Behavioral Science; 2002.
- Mihalic SF, Irwin K. Blueprints for violence prevention: From research to real-world settings—Factors influencing the successful replication of model programs. *Youth Violence and Juvenile Justice* 2003;1:307–329.
- Minkler, M.; Wallerstein, N. Improving health through community organizing and community building. In: Glanz, K.; Lewis, FM.; Rimer, BK., editors. *Health behavior and health education: Theory, research and practice*. 3. San Francisco: Jossey-Bass; 2002. p. 241–269.
- Molgaard, V.; Kumpfer, K.; Fleming, B. The Strengthening Families Program: For Parents and Youth 10–14. Ames: Iowa State University Extension; 1997.
- Molgaard, VM.; Spoth, R.; Redmond, C. OJJDP Juvenile Justice Bulletin (NCJ 182208). Washington, DC: U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention; 2000. Competency training: The Strengthening Families Program for Parents and Youth 10–14.
- National Institute on Drug Abuse. NIH Publication No. 97–4212. Rockville, MD: Author; 1997. Preventing drug use among children and adolescents: A research-based guide.
- Perrino T, Coatsworth JD, Briones E, Pantin H, Szapocznik J. Initial engagement in parent-centered preventive interventions: A family systems perspective. *The Journal of Primary Prevention* 2001;22:21–44.
- Rohrbach LA, Hodgson CS, Broder BI, Montgomery SB, Flay BR, Hansen WB, Pentz MA. Parental participation in drug abuse prevention: Results from the Midwestern Prevention Project. *Journal of Research on Adolescence* 1994;4:295–317.
- Roussos ST, Fawcett SB. A review of collaborative partnerships as a strategy for improving community health. *Annual Review of Public Health* 2000;21:369–402.
- Saunders SD, Greaney ML, Lees FD, Clark PG. Achieving recruitment goals through community partnerships: The SENIOR project. *Family and Community Health* 2003;26:194–202. [PubMed: 12829941]

- Spoth RL, Greenberg MT. Toward a comprehensive strategy for effective practitioner–scientist partnerships and larger-scale community benefits. *American Journal of Community Psychology* 2005;35(3–4):107–126. [PubMed: 15909789]
- Spoth R, Greenberg M, Bierman K, Redmond C. PROSPER community–university partnerships model for public education systems: Capacity-building for evidence-based, competence-building prevention. *Prevention Science* 2004;5:31–39. [PubMed: 15058910]
- Spoth R, Redmond C. Parent motivation to enroll in parenting skills programs: A model of family context and health belief predictors. *Journal of Family Psychology* 1995;9:294–310.
- Spoth R, Redmond C. Research on family engagement in preventive interventions: Toward improved use of scientific findings in primary prevention practice. *The Journal of Primary Prevention* 2000;21:267–284.
- Spoth R, Redmond C. Project Family prevention trials based in community–university partnerships: Toward scaled-up preventive interventions. *Prevention Science* 2002;3:203–221. [PubMed: 12387555]
- Spoth R, Redmond C, Kahn J, Shin C. A prospective validation study of inclination, belief, and context predictors of family-focused prevention involvement. *Family Process* 1997;36:403–429. [PubMed: 9543661]
- Spoth R, Redmond C, Shin C. Modeling factors influencing enrollment in family-focused preventive intervention research. *Prevention Science* 2000a;1:213–225. [PubMed: 11523749]
- Spoth R, Redmond C, Shin C. Reducing adolescents’ aggressive and hostile behaviors: Randomized trial effects of a brief family intervention four years past baseline. *Archives of Pediatrics and Adolescent Medicine* 2000b;154:1248–1257. [PubMed: 11115311]
- Spoth R, Redmond C, Shin C. Randomized trial of brief family interventions for general populations: Adolescent substance use outcomes four years following baseline. *Journal of Consulting and Clinical Psychology* 2001;69:627–642. [PubMed: 11550729]

Table 1

Attendance Rates Across Cohorts

Attendance-cohort	Rate (%)	Range of rates (%)
Attended at least one session		
Cohort 1	17.5	8.2–38.5
Cohort 2	16.3	7.1–25.2
Total ($N = 1,064$; estimated 2,650 family members)	16.9	11.2–30.8

Table 2

Correlates of District-Level Attendance Rates (N = 14): Bivariate and Partial Correlations Controlling for Community Contextual Variables

Variable	Cohort 1		Cohort 2	
	Bivariate	Partial	Bivariate	Partial
General team functioning				
Team effectiveness	.52 [†]	.36	.37	.26
Quality of meetings	.50 [†]	.40	.22	.12
Attitudes regarding prevention	.51 [†]	.01	.27	-.01
Recruitment-specific functioning				
Quality of promotional/information materials	.67 ^{**}	.80 ^{**}	.61 [*]	.64 [*]
Efforts to contact families	.53 [†]	.32	.46 [†]	.35
Technical assistance (TA)				
Effective TA collaboration	.26	.21	.64 [*]	.63 [*]
Frequency of TA requests	-.59 [*]	-.76 ^{**}	-.38	-.32

Note. Partial correlation coefficients controlled for three contextual variables (educational attainment, supportive district policy, and district substance use).

[†] $p \leq .10$.

^{*} $p \leq .05$.

^{**} $p \leq .01$.