

# Family-Focused Prevention Intervention Research: A Pragmatic Perspective on Issues and Future Directions

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## INTRODUCTION

The primary objective of this chapter is to provide a pragmatic perspective on family-focused prevention intervention research issues and strategies. This pragmatic perspective focuses on the ultimate utility of research, particularly its impact on family functioning and child problem behaviors in various segments of the population. Such a perspective is consistent with standards articulated by pragmatists who propose that the most meaningful ideas are those that yield the most practically useful results (e.g., James 1909). Fortunately, advances in prevention science models and methods have greatly enhanced the practical benefits of family-focused prevention intervention research. These advances include consumer research on family participation factors, contextualist or ecological approaches to research partnerships, methods for the study of intervention-related change mechanisms, and the adaptation of research dissemination guidelines from preventive medicine.

A large number of family-focused prevention intervention research issues carry practical implications, either directly or indirectly (see Center for Substance Abuse Prevention [CSAP] 1995*b*; Small 1990; U.S. Department of Justice 1992). A major issue confronting researchers is the need for a conceptual framework to guide the design, implementation, evaluation, and field application of family interventions, as discussed in the next section.

## A HIERARCHY OF RESEARCH FUNCTIONS AND ISSUES

Extant prevention research models, such as the Institute of Medicine (IOM) Preventive Intervention Research Cycle (Institute of Medicine 1994) and the National Cancer Institute (NCI) five-phase model for intervention research (Greenwald and Cullen 1985) are oriented

toward the goal of translating sound research into practice. Consistent with the IOM and NCI research models, a fundamental requirement for sound family-focused prevention intervention research is the conceptualization of guiding theories or hypotheses, starting with a clear definition of key terms and concepts. As Lewin stated, there is nothing more practical than good theory; precise and consistent definition of key terms and concepts is essential in reaping the practical benefits of good theory and the research testing that theory (Lewin 1951).

Another fundamental research activity involves the development of methods that maximize experimental validity and sensitivity. Though often challenging in the context of intervention research, application of optimal research methods is ultimately practical because it greatly enhances the researcher's ability to draw reasonable conclusions from empirical studies that are useful to practitioners. Corresponding to the middle phases of the IOM and NCI models, this empirical study function should include intervention needs assessments, appropriate collaboration with interested parties in implementation localities, and effective intervention recruitment and retention strategies. Addressing intervention research implementation issues in an ecologically sound way (see Lerner 1994) reduces the difficulties of working through issues associated with the final, ultimately practical researcher function, namely, facilitating the application of research findings. This function includes field implementation of efficacious interventions, the conduct of studies to guide policymaking (e.g., cost-effectiveness evaluations), and communication of findings to policymakers.

All of the aforementioned research functions are aided by a strong research infrastructure (e.g., strong organizational mechanisms for research collaboration) and a clear research agenda. Optimally, this agenda is formulated in light of the needs of at-risk children and families of all races and all socioeconomic strata. This approach is challenging, primarily because the amount of family-focused prevention intervention research needed to address the wide-ranging needs of at-risk children and families far exceeds the resources available to conduct it. The magnitude of substance-related problems among American youth (Carnegie Council on Adolescent Development 1995; Center for Substance Abuse Prevention 1995*b*; Johnston et al. 1994; U.S. Department of Health and Human Services 1994) and the costs associated with implementation of intervention research models like those proposed by IOM magnify this gap between the research work needed and the available resources. Given this state of affairs, setting

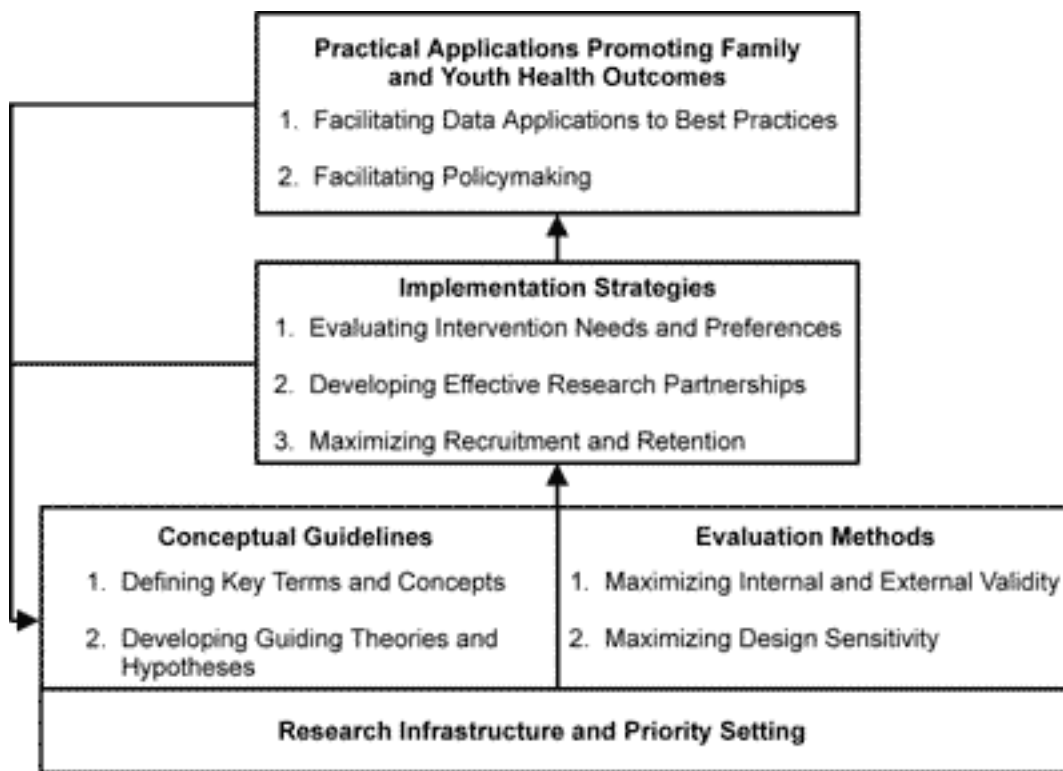
research priorities sensitive to the needs of children at risk for substance problems is critically important.

Small (1990) has addressed the importance of the practical implications of family intervention research by framing this research in terms of hierarchically arranged functions of parenting related to children's needs, similar to Maslow's (1970) hierarchy of individual needs. The foundation of this hierarchy of parental functions is the provision of the basic needs of children; farther up the hierarchy are children's needs for nurturance and guidance. Capping the hierarchy is the need for advocacy and support in the context of the broader community. This framework has been used to present recommendations for practitioner implementation of family interventions (focusing on families with adolescents) and for family intervention research.

Small's (1990) presentation of parenting functions suggests that the community of researchers should consider the hierarchy of children's needs and related parental functioning if their research is to have optimal practical benefits. For example, teaching parents child management skills is not likely to be effective if those parents are struggling to meet the family's basic survival needs. Optimally, such needs are considered in (1) establishing a research agenda by the research community, (2) individual researchers' decisions about the implementation of prevention intervention research studies, (3) the dissemination of best practice information, and (4) the communication of findings to policymakers.

A framework of research functions and associated issues in family-focused prevention intervention research is outlined in figure 1. Consistent with the IOM research model (Institute of Medicine 1994), this framework indicates that progress in addressing tasks and issues in the development of theory and methods facilitates intervention implementation and application of intervention research findings (discussed in the next section). Likewise, knowledge gained from intervention implementation and application of findings can inform refinement of theory and methods. This process is represented by the feedback loops in figure 1.

The remainder of this chapter discusses the research issues and needs outlined in table 1. These parallel the research activities and functions



presented in figure 1, an overview of issues and needs specific to each research function. One or two key issues are then discussed in greater depth, and illustrations of how these issues have previously been addressed are provided, drawing on work from a large-scale research project on family-focused prevention interventions. Finally, fundamental issues concerning research priorities and infrastructure are discussed.

## CONCEPTUAL AND THEORETICAL GUIDELINES

### Definition of Key Terms and Concepts

It will be difficult for the field of intervention research to progress and achieve its practical objectives if ambiguities and inconsistencies in the key terms and concepts abound. Definitional stumbling blocks are especially problematic when they are integral to the guiding hypotheses and theories that are influential in the field. They are also problematic

**TABLE 1.** *Issues and needs in research on family-focused prevention interventions.*

Primary Types of Researcher Functions	Key Tasks	Selected Issues and Needs
Developing conceptual/theoretical guidelines	1. Clearly defining key terms and concepts	<ul style="list-style-type: none"> <li>a. Address varying definitions of family</li> <li>b. Develop consensus definition of prevention research and prevention intervention</li> <li>c. Address ambiguities in definition of intervention typologies (e.g., universal, selective, indicated)</li> </ul>
	2. Developing guiding theories and hypotheses	<ul style="list-style-type: none"> <li>a. Develop generalizable etiological models across programs of research</li> <li>b. Develop "small" theory to guide intervention design, addressing limited specificity of etiological models</li> </ul>
Developing evaluation methods	1. Maximizing experimental validity	<ul style="list-style-type: none"> <li>a. Conduct more studies with strong internal and external validity</li> <li>b. Improve standardization of measures across studies and extend use of multimethod, multiagent approaches</li> </ul>
	2. Maximizing design sensitivity	<ul style="list-style-type: none"> <li>a. Use larger sample sizes and measure intervention integrity, especially in studies of interventions of modest intensity</li> <li>b. Apply "sensitive" design approaches, including latent variable structural methods</li> </ul>
Strengthening the foundation	1. Addressing ethical/moral issues	<ul style="list-style-type: none"> <li>a. Address general challenges to human rights protection</li> <li>b. Set priorities that carefully consider family needs</li> </ul>
	2. Developing infrastructure	Strengthen support for research infrastructure and coordination

**TABLE 1. Issues and needs in research on family-focused prevention interventions (continued).**

Primary Types of Researcher Functions	Key Tasks	Selected Issues and Needs
Designing implementation/engagement strategies	1. Orienting interventions toward demonstrated needs and preferences	<ul style="list-style-type: none"> <li>a. Assess family needs when planning interventions</li> <li>b. Apply consumer research to identify population segments, determine family preferences, and improve intervention acceptability</li> </ul>
	2. Developing effective research partnerships	Develop more optimal models and methods of collaboration with stakeholders
	3. Maximizing recruitment and retention rates	<ul style="list-style-type: none"> <li>a. Increase study of sociodemographic, prevention belief, and social influence factors affecting family participation</li> <li>b. Conduct more study of optimal strategies to overcome recruitment/retention barriers, particularly with universal interventions</li> </ul>
	4. Addressing cultural sensitivity	Devote more attention to cultural sensitivity and study with "special" populations
Facilitating research applications	1. Facilitating data applications to best practices	Develop appropriate guidelines for practitioner applications, taking into account limited data
	2. Facilitating policymaking	<ul style="list-style-type: none"> <li>a. Appropriately inform policymakers</li> <li>b. Conduct research to guide policymaking (e.g., cost-effectiveness of interventions)</li> </ul>

when they bear on the clarity of boundaries defining the field itself (e.g., the concept of prevention intervention). In formulating directions for family-focused prevention intervention research, clear specification of key concepts is warranted. The fact that many of the relevant concepts (e.g., family, prevention research, prevention intervention) are inconsistently defined in various literatures presents a number of challenges. These include impediments to the development of a focused research agenda, difficulties in precise comparisons of findings across studies, and barriers to cumulative knowledge building. The chapter appendix summarizes inconsistencies in the usage of several key terms (family; prevention research; prevention intervention; and universal, selective, and indicated interventions) and notes several implications of inconsistent usage.

### Guiding Theories and Hypotheses

Before an intervention is developed, the Institute of Medicine (1994) prevention intervention research model recommends that a theoretical model be carefully chosen to guide the design of the intervention. Considering strategies for choosing theoretical models for family-oriented prevention intervention raises a number of issues. These issues focus on the practical matter of applying etiological research to the design of an intervention targeting a particular population.

Dishion and colleagues have noted how important it is to conceptualize family processes in a manner that maximizes the practical utility of the research findings (Dishion et al. 1988) and how helpful it can be to use a small number of interrelated concepts in this conceptualization (Patterson et al. 1992). These points are well illustrated in their programmatic research, with its underpinnings in a long tradition of well-integrated clinical, theoretical, and empirical work. However, beyond some exemplary, long-standing programs of research, the field as a whole confronts a number of challenges in “integrating” theory, basic investigation, and applied investigation originating in different disciplines and/or programs of research.

Among key challenges are verification of the generalizability of the etiological findings with one population to another population, even when there are only minimal sociodemographic differences, and determination of how the state of the etiological art can best be

applied to intervention research with understudied special populations. As an example of the problem of generalizability, the degree to which etiological models developed on a specific white, urban, and middle-class population (e.g., in New York City) generalize to the design of the intervention for another white, urban, middle-class population (e.g., in Atlanta, Georgia) is important to consider, because of the potential intervention-relevant differences among such populations (e.g., religious beliefs, cultural influences) despite some similar sociodemographic characteristics. Similarly, findings from one type of special population (e.g., economically stressed rural families in Iowa) may not generalize to a similar special population in a different part of the country (e.g., Virginia) supported by a different type of economic base (see Spoth 1997). Obviously more problematic is the generalizability of models tested with white, urban, middle-class populations to minority, lower income, or rural populations. There has been very limited analysis of family etiological models with special populations (e.g., minority, rural, lower income) applied to intervention research (see Small 1990; Spoth 1997), even though it is urgently needed.

Reid (1991) underscores the point that many of the challenges in the application of etiological models to prevention intervention design occur because of “deficits and gaps in the basic knowledge base” (p. 868). In designing interventions, researchers must often rely on the integration of findings from multiple studies on the causal processes linking risk factors to deleterious outcomes of interest. A number of problems often arise in this integrative scholarship as a result of the deficits and gaps in the etiological knowledge base. Individual studies rarely include a comprehensive set of etiological variables of relevance to the design of an intervention; evaluating the relevance of these variables across studies is difficult because both etiological and outcome variables are often measured in various ways. Because there is so little longitudinal research on comprehensive sets of etiological variables linked with specific outcomes, there is frequently a dearth of knowledge about (1) whether or not various individual etiological variables evaluated across multiple studies indicate distinct causal processes, (2) what the actual sequencing of etiological effects is, and (3) which among the variables account for most of the variance in the outcome(s) of interest. Reid (1991) illustrates these points in his discussion of research on the etiological factors associated with poor outcomes among children for divorced families (e.g., deteriorations in the custodial parent-child relationship and problems with child discipline—also see Pillow et al. 1991).



Several other issues can arise in the application of etiological models to guide practical intervention design. Another obvious one is that the constructs in etiological models are often defined at a more molar level than is useful for interventions operating at a more molecular level. Etiological models often specify global constructs (e.g., quality of parenting) that only loosely correspond to the specific behaviors targeted by an intervention (e.g., specific skills-training techniques intended to change specific types of behaviors or sets of behaviors—such as those involving parental monitoring, disciplinary, and communication techniques—in specific contexts). In addition, these global etiological models may include nonmodifiable factors. Moreover, global models do not specify behavior and attitude change techniques required to modify the individual causal factors in the model, or the degree to which they must be adapted to culturally based expectations, learning styles, and other characteristics of intervention participants. Many of the etiological models in the literature account for only a relatively limited amount of variation in the targeted outcome. A model having a good fit to the data and including quality of parenting as well as other nonmodifiable contextual (e.g., socioeconomic) factors may account for 30 percent or less of the total variation in child outcomes of interest (e.g., young adolescent substance use). (Also see Institute of Medicine [1994] for a discussion of related issues concerning the application of etiological models to intervention design.)

Some of the above points became especially salient in a search of the etiological literature for guidance in the adaptation of existing family-focused prevention interventions to lower income rural midwestern populations. The goal was to intervene in specific types of parent and young adolescent behaviors causally related to the young adolescent outcomes of interest. The author and his colleagues were also interested in finding models of the mechanisms whereby etiological factors operated on the specific outcomes of interest, at a level of specificity that could be helpful in intervention design (e.g., effects of specific types of communication between parents and teachers on problem behaviors observed in the classroom setting). Finally, the author and his colleagues were especially interested in etiological models addressing protective or resiliency processes.

Although many excellent studies on family-related etiological processes were found, most of this research had the threefold problem of inconsistent measurement of causal variables, unknown generalization to the target population, and a lack of specificity necessary to guide intervention design. The most relevant, high-quality etiological research was conducted by colleagues in the

author's research center with local populations (e.g., Conger and Elder 1994). This research allowed for a level of confidence that targeting parenting skills-training would be helpful in the reduction of young adolescent problem behaviors in the population, but did not provide guidelines on how to change the causal variables in question—that is, how to design such training within acceptable parameters (e.g., appropriate and acceptable skills-training techniques, time demands on participants) in the population of interest. By necessity, the alternative to “a theoretical model to guide the intervention” (see Institute of Medicine [1994], pp. 365-366) was a process of synthesizing a practical theory. That is, researchers drew upon a synthesis of clinical experience with the population, relevant intervention research, and relevant etiological research to bridge the gap between the general knowledge base and the particular intervention design needed. The next section illustrates how data from family-focused intervention research studies can be used to address related gaps between the knowledge base and the specifics of an intervention design for a given population.

Another way of thinking about the issue of applying molar etiological models to molecular intervention design is presented by evaluation theorists. The limitations in applying the extant etiological literature to the specific requirements of family-focused prevention intervention design, particularly with special populations, highlight a fundamental distinction between etiological and intervention models frequently noted in the evaluation research literature (e.g., Chen and Rossi 1983, 1987; Lipsey 1990; Rossi and Freeman 1992). These theorists describe how etiological theory emphasizes the natural causes of a problem, while intervention theory emphasizes the mechanisms through which the intervention can affect the problem. An important point is that the processes naturally producing the problem may differ from those remedying it—an intervention may not result in the same behavioral or social processes that result when the changes occur naturally (see Rossi and Freeman 1992 for illustrations of this point). As Lipsey (1990) notes, etiology involves “large” or “grand” theory about general biological, sociological, or psychological phenomena; intervention theory is “small” theory focusing on the explanation of processes specific to one type of intervention. Small theories are more practical in that they focus on the impact of change procedures on specific mechanisms of change. Improving the understanding of such mechanisms is critically important for intervention refinement. These mechanisms of change involve, for example, links in the sequence of intervention-related change in specific types of social interactions, and the influence of individual difference variables on those changes. It is especially clear

that there is a need for the development of small theory to guide the design and refinement of interventions targeting special populations. The practical theory referenced in the preceding paragraph was, essentially, a specific small theory focusing on the target population.

Small-theory development is facilitated by intervention designs that initially utilize a combination of (1) etiological theory, (2) relevant intervention research, and (3) clinical experience, subsequently using experimental data to clarify and refine models of intervention-related change mechanisms. In turn, small-theory development serves the ultimate, practical goal of the development of efficacious interventions for application to specific populations. There are several prevention intervention research programs that illustrate this type of approach to intervention development, particularly those concerning indicated prevention interventions for conduct problems (e.g., Conduct Disorders Prevention Research Group 1992; Patterson et al. 1992).

This type of programmatic research approach often begins with an attempt to define the problem targeted by an intervention in terms of incompetent or inappropriate responses to environmental demands and to clarify what constitutes competent responses or appropriate skills, guided by relevant research and theory. Once the desired competencies or skills are selected for intervention purposes, the competency or skill-learning process is conceptualized. Intervention content and delivery or competency training strategies can then be designed. At this point, the characteristics of diverse situations in which the competencies must be applied, individual differences in learning the targeted competencies, and contextual or cultural factors that could influence competency acquisition must be considered. Intervention design also includes integration of contextual supports for competency acquisition. In the case of young adolescent problemsolving competence, for example, the intervention might include methods of support and reinforcement from parents, teachers, and peers. Finally, methods for appropriately structuring the learning environment are considered, including appropriate training for those implementing the intervention and, if the intervention has a small-group format, appropriate group composition. An illustration of the implementation of this type of intervention design process has been reported by Bierman (1994, 1995).

Illustrative Conceptualizations of Intervention-Related  
Change Mechanisms

Because of the careful, practically oriented conceptualization involved, interventions that have been based on models such as the one in the previous paragraph readily lend themselves to modeling of intervention-related change mechanisms using data from outcome studies. Family-focused prevention interventions tested at the author's research center were selected for evaluation, in part, because of the strong empirical and theoretical basis of their design; several approaches to the examination of change mechanisms associated with these interventions are currently being assessed. This work is being conducted through programmatic research under the title "Project Family" (Spoth and Redmond, submitted, 1995*b*, 1996*a*).

Project Family is a series of investigations addressing (1) the efficacy of universal family competency training interventions and mechanisms of intervention-related change, (2) factors influencing family participation in these interventions, and (3) the prevalence of protective and risk factors indicating the need for family-focused prevention services. Achieving the goal of investigating the efficacy of family competency training interventions and intervention-related change mechanisms has involved addressing two sets of complementary research questions. The first question entails conventional tests of intervention effects on targeted outcomes. For example, one of the interventions under investigation is the Preparing for the Drug-Free Years (PDFY) Program (Hawkins et al. 1988, 1991). A previous report summarized the positive outcomes of global measures of parenting (e.g., parent-child affective quality and effective child management), using analyses of covariance (Spoth and Redmond, submitted, 1995*b*). In addition, the results of analysis of covariance tests of more specific measures of outcomes targeted by specific sessions have also been generally positive, but relatively more mixed than results concerning global parenting outcomes, both on self-report (Kosterman et al., submitted, 1995*a*) and observational measures (Kosterman et al., submitted, 1995*b*).

A second, but complementary, type of research question addressed by Project Family focuses more directly on intervention-related change mechanisms. Essentially, the relevant question addressed is, How do naturally occurring etiological processes combine with intervention processes to produce changes in selected dependent variables? Various types of path modeling have been used to examine effects hypothesized to be central to these two processes, including additive or direct effects, indirect or mediated effects, and moderating effects. To date, most of these path models have concerned the evaluation of additive direct and indirect effects, focusing on family-related protective etiological processes wherein intervention parameters have

played a significant but secondary role (e.g., Spoth and Redmond 1996*b*; Spoth et al. 1996*d*).

The conceptual and path analytic strategies used to examine change mechanisms in Project Family illustrate a rich variety of options. Essentially, in each case, the role of intervention variables (e.g., dummy code based on group assignment, intervention dosage) is considered in light of the presumed causal relationships among the change mechanism variables involved. Conceptually, these models have begun with careful consideration of (1) the theoretical and empirical work bearing on etiological processes in producing specific outcomes of interest, (2) the expected role of the intervention in this context, and (3) the appropriate data analytic methods for examining the types of etiological and intervention effects that are expected.

As an example, regression analyses have also been used in a path analytic framework to examine (1) the effects of individual difference variables (parent readiness for change and parent self-efficacy) and attendance in the PDFY intervention on parenting behaviors directly targeted by the intervention, after controlling for pretest levels of intervention-targeted parenting behaviors, and (2) the indirect effects of individual difference and PDFY intervention attendance on general child management skills (via effects of intervention-targeted parenting behaviors). The mechanism of parenting change posited in this path analytic framework assumes that the PDFY intervention has its strongest effects on the parenting behaviors it was specifically targeted to change (e.g., clarifying rules regarding child substance use) and that changes in those targeted behaviors would promote changes in related, more general parenting practices (e.g., setting standards concerning a range of child behaviors). Regression analysis results showed individual difference effects on intervention-targeted parenting behaviors and generally supported the assumed mechanism of parenting change, as illustrated in figure 2.

In addition to regression analysis results summarized in figure 2, analyses were conducted to examine whether a model with interaction effects contributed significantly more than regression models containing

[insert graphic]

main effects only. Subsequently, assessments of which specific interaction terms were significantly contributing to an increase in predictive power were conducted. In these regression analyses, the intervention condition was dummy-coded (see Spoth et al. 1995*c*).

Other path models tested in Project Family have incorporated child outcomes. These child outcomes are hypothesized to be relatively distal to parenting processes directly and immediately influenced by the intervention (i.e., those measured at posttest, such as child management practices). In these cases, intervention parameters (e.g., session attendance) have been incorporated to account for indirect intervention effects expected to be small in size (e.g., Spoth et al. 1996*c, f*).

In sum, this discussion of path-analytic approaches to modeling intervention-related change mechanisms illustrates that the manner in which intervention effects are modeled depends on the researcher's

objectives and assumptions about the role of the intervention in any given case. In particular, family-related etiological processes specific to the outcome of interest and the points at which the intervention would likely impact that process need to be carefully considered.

## STRENGTHENING METHODS FOR INTERVENTION EVALUATION

It is helpful to compare current investigations of family-focused preventive interventions against standards for experimental research. The most striking result of such a comparison is that there has been very limited family-focused research conducted to date that meets the criteria for strong validity in experimental design (internal, external, construct, and statistical conclusion validity; see Cook and Campbell 1979). In addition, most of the extant research has very limited “design sensitivity” (see Lipsey 1990), which also includes consideration of construct and statistical validity issues.

In short, there are a limited number of indicated and selective family-focused prevention intervention studies that demonstrate any appreciable degree of validity and sensitivity; no published reports of controlled universal family-focused intervention studies with multimethod measurement could be found outside of the author’s research center. As previously reported, family-focused interventions are widely disseminated, but rarely evaluated, in any form (Small 1990; Spoth 1997). A comprehensive review of the literature for the CSAP (Center for Substance Abuse Prevention 1995*b*) guideline on family-oriented interventions showed that those that are evaluated are primarily indicated interventions. This CSAP review and several others (e.g., Chatterji et al., this volume; Small 1990; U.S. Department of Justice 1992; Wiese 1992; Yoshikawa 1994) clearly demonstrate that the few evaluation research studies that have been conducted suffer from a number of deficits limiting their validity, sensitivity, and practical implications, including a lack of a strong theoretical and empirical base, small sample sizes, a lack of experimental control, a lack of followup assessments, problems with assessment by intervention interactions, a lack of statistical control, a failure to evaluate intervention fidelity, and limited cost-effectiveness evaluation. Some of these deficits (e.g., sample size, fidelity evaluation) are especially problematic in the typical case where only small to moderate effect sizes are expected.

Reviews also show that there is limited use of multimethod, multi-informant measurement procedures, despite the ample literature on

the benefits of these procedures in research with families (e.g., Bank et al. 1990; Conger and Elder 1994; Hops et al. 1987; Lewin et al. 1993; Patterson et al. 1992). Additionally, there has been a great deal of variability in the operationalization of constructs with similar labels (e.g., Hoppe et al. 1993; Spoth and Redmond 1996a). Moreover, there has been limited application of graphical and data analytic strategies that are advantageous in addressing problems associated with (1) missing data and subject attrition, (2) the analysis of change in dynamic outcome variables, and (3) curvilinear relationships between variables (see Collins and Horn 1991; Collins and Shanahan 1996; Duncan and Duncan 1995; Graham et al. 1994; Hawkins et al., submitted, 1996; Spoth et al. 1997b). Finally, problems associated with nested designs and multilevel data structures frequently are not adequately treated (Collins and Shanahan 1996; Dwyer et al. 1989; Murray and Hannan 1990).

The significance of the problems noted in the paragraphs above comes into clearer focus when viewed from the perspective of the IOM research model. According to this model, any given intervention requires a series of valid and sensitive studies before it is appropriate for widespread application. Although in its early stages, Project Family has addressed a number of issues among those described earlier. In addition to employing subject selection procedures and experimental designs strengthening internal and external validity, a number of methods have been employed in Project Family to address issues related to design sensitivity. For example, methods used to determine appropriate sample sizes for achieving given levels of statistical power in the case of substance onset measures have been critically evaluated, leading to recommendations for the application of conditional binomial methods to control for baseline rates, other than in the case where those rates are quite small (Yoo and Spoth 1993). As another example, an observational system designed to ensure implementation integrity has been developed. In the context of this chapter, the focus is on sensitivity and validity enhancement methods employed in Project Family to assess outcomes through the use of a latent variable approach.

### Latent Variable Approaches Addressing Validity and Sensitivity

As Aiken and colleagues (1994) reported, structural equation modeling (SEM) can be effectively applied to treatment outcome research. SEM analyses are analogs of classical multivariate techniques (e.g., multiple analyses of covariance [MANCOVAs]) and can



simultaneously address a combination of measurement and data analytic problems that limit experimental validity and sensitivity. They can also directly contribute to theoretical model development. There are several potential advantages of incorporating SEM in family-focused prevention intervention outcome research.

First, SEM can assist in the reduction of the effects of both random measurement errors and measurement method biases that threaten the power to detect mean differences in comparing groups on dependent or outcome measures (e.g., Russell et al., submitted, 1995). Given the small effect sizes that can often be expected as a result of prevention interventions (particularly low-intensity interventions with general populations), this is a particularly important advantage to consider in analyzing data from prevention studies. Second, SEM facilitates the examination of intervention-related change mechanisms, complementing conventional tests of intervention effects on selected outcome measures (Spoth et al. 1995c). It can be used to examine theory-based mediators of intervention-related influences on outcomes like those discussed in the preceding section. The indirect effects of variables proximally influenced by the intervention on relatively more distal outcomes can be assessed.

A third important advantage of SEM is that it allows assessment of intervention effects on a number of outcomes simultaneously (Aiken et al. 1994). This is especially noteworthy in the context of family-focused prevention intervention research, since interventions in this area are complex, with multiple intervention goals. Essentially, SEM puts the researcher in a better position to examine an expected set of multiple intervention effects on constructs with multiple indicators. (See Aiken et al. 1994 for an examination of tradeoffs in the application of MANCOVA versus SEM analyses.)

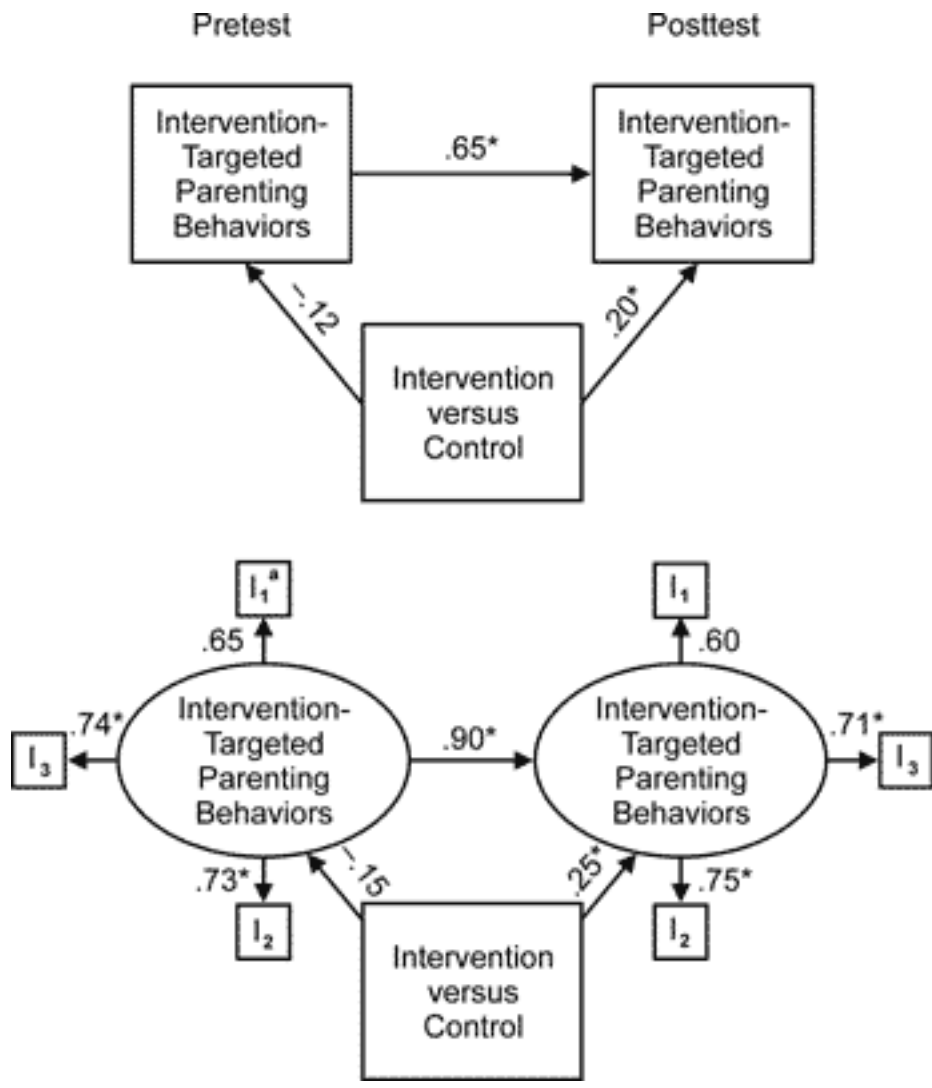
Fourth, SEM can be applied to problems with missing cases and missing data. As illustrated by Aiken and colleagues (1994), SEM can be used to assess the effects of attrition on intervention outcomes. Given the fact that attrition is a common problem in family-focused intervention research (Spoth and Redmond 1994), this benefit is an especially key one. In addition, SEM can be used to compare participants with complete data and those with partial data, using information available on both groups (Russell et al., submitted, 1995). Furthermore, differences in relations among variables in the two groups can be examined using multiple-group SEM analyses.

A final point is that, for a variety of reasons, family intervention studies are often quasi-experimental. With this type of design it is especially

important to examine differential selection biases. In such cases, a group-coded strategy in the application of SEM can be employed in which, when appropriate, experimental condition is used as a categorical predictor and pretest levels on latent constructs are controlled (see Aiken et al. 1994).

Two sets of SEM analyses conducted in the context of Project Family efficacy studies illustrate the validity and sensitivity benefits described earlier. The two sets of analyses involve two outcome studies, both of which used random assignment to condition and were designed to test the efficacy of the PDFY family competency-training intervention referenced in the prior section. Study procedures and the measures used in the analyses outlined below have been previously described in detail (Spoth and Redmond 1996a; Spoth et al. 1995c).

The first set of analyses was conducted to illustrate some of the advantages and issues associated with latent variable SEM (Russell et al., submitted, 1995). For example, the findings illustrate how estimates of intervention effects and of the stability of constructs over time are altered when a latent variable SEM approach is utilized. The upper portion of figure 3 displays the results of regression analysis, controlling for the pretest measure of the outcome (targeted parenting behaviors). It shows that the intervention was a significant predictor of the outcome, using a dummy-coded variable reflecting group membership. For illustrative purposes, factor analyses of the items composing the targeted parenting behaviors measure guided the identification of three indicator variables ( $I_1$ ,  $I_2$ ,  $I_3$ ) that were used to specify a latent variable at pretest and at posttest. The bottom portion of figure 3 illustrates the use of SEM to derive estimates of relations among the constructs that are unaffected by random measurement error. Employing this latent variable approach, the estimated stability of the construct increases from 0.65 to 0.90 (test to retest standardized path coefficient) and the estimated effect of the intervention increases from 0.20 to 0.25. Further analyses that incorporated correlated measurement error and constrained the loadings of the indicator variables at posttest to be equivalent to those at pretest (to ensure that the nature of the measured construct did not change) improved the model fit and

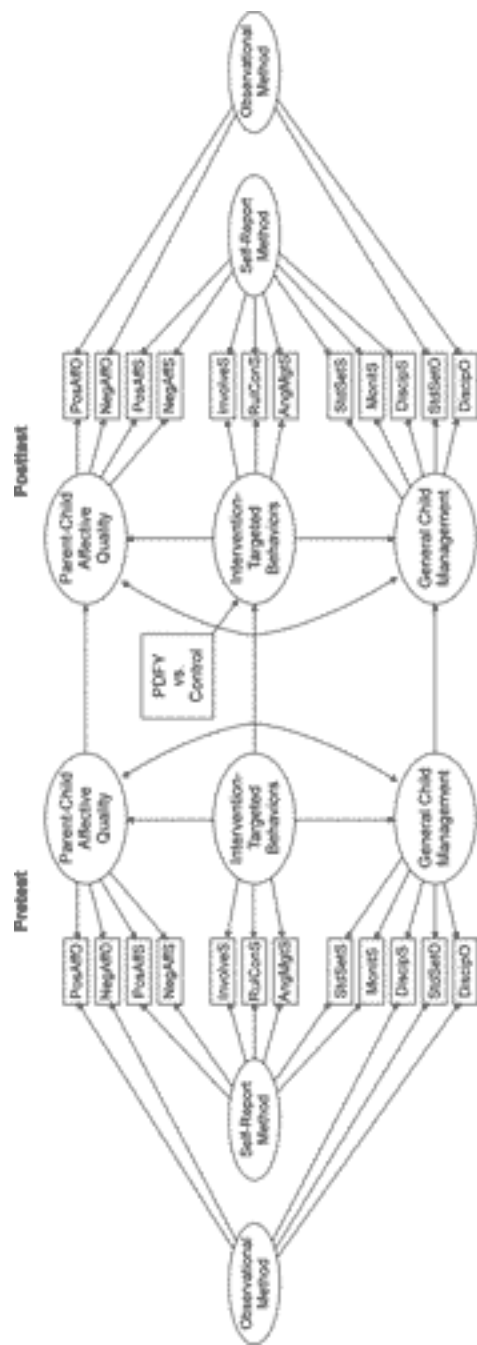


showed a significant relationship between the intervention and the outcome (Russell et al., submitted, 1995).

The second set of illustrative SEM analyses entailed the application of a latent variable strategy to the examination of the direct and indirect effects of three parent competency outcomes following the PDFY competency-training intervention trial (Spoth et al. 1996c). This approach illustrated the benefits of using SEM to simultaneously evaluate multiple outcomes of the intervention when controlling for pretest levels of those outcome variables. Based on a pilot study intervention effects model and related findings (Spoth and Redmond 1996b; Spoth et al. 1995c), a model was

tested in which the PDFY program was expected to directly affect intervention-targeted parenting behaviors and indirectly affect global dimensions of parenting (parent-child affective quality and general child management) through its effect on intervention-targeted behaviors (see figure 4). Operationally defining the global outcome measures was based on a long tradition of literature establishing two basic dimensions of parenting. Multiple self-report and observational indicators were employed to measure these parenting constructs. Three indicators of intervention-targeted parenting behaviors were developed from self-report questionnaire items concerning parents' (1) efforts to involve their child in family activities and decisions (Involve S), (2) communication of substance-related rules and consequences to their child (Rul Con S), and (3) anger management with their child (Ang Mgt S). Five indicators of general child management were identified, three from the self-report and two from the observational portions of the interviews. Parallel self-report and observational indicators assessed standard setting (Std Set S and Std Set O) and consistent discipline (Discip S and Discip O); in addition, there was a self-report child monitoring indicator (Monit S). There were four indicators of parent-child affective quality. These included parallel self-report and observational measures of the noncontingent expression of positive affect (Pos Aff S and Pos Aff O) and negative affect in the parent-child relationship (Neg Aff S and Neg Aff O).

In addition to the hypothesized direct and indirect intervention effects on parenting outcomes at posttest, the model fit to the data included (1) parallel effects among parenting constructs at pretest (except for the direct intervention effect); (2) pretest-to-posttest effects of each parenting construct; (3) correlated residuals of the global parenting constructs within each wave of data, to account for additional correlations between the constructs not accounted for by effects in the model; (4) measurement method effects associated with observational and self-report indicators; (5) correlated pretest-posttest errors for each of the indicator variables (not shown in the figure); and (6) correlated pretest-posttest residuals of the latent method effect constructs (not shown in the figure). Parameter constraints were imposed to ensure that the unstandardized latent construct indicator loadings were equivalent at pretest and posttest for each construct. A likelihood ratio chi-square test of the equality constraints was not significant at the 0.05 level, indicating that the constraints did not substantially impair the fit of the measurement model. Modeling results supported the hypothesized direct and indirect intervention effects. Development of a report on these findings is under way; the primary point of the SEM approach illustrated in this section is to



Cross-time correlations of error terms and residuals are not shown.

highlight one solution to several interrelated design sensitivity issues salient in family-focused prevention intervention research.

## IMPLEMENTATION AND ENGAGEMENT STRATEGIES

### Assessment of Family Needs

The IOM (Institute of Medicine 1994) emphasized that it is important to carefully select the appropriate recipients for an intervention in the intervention research stage of the research cycle (step 3). This effort benefits from a careful review of relevant epidemiological and etiological literature; ideally, it is based on risk and target problem prevalence data from the population into which the intervention will be introduced (or, at least, prevalence data from a very similar population). There is little evidence of the collection of such data prior to the implementation of family-focused prevention interventions, except in the case of a few indicated intervention studies employing screening procedures. In the case of selective interventions, such data can assist in the identification of those individuals or subgroups at the appropriate risk level for the intervention. In the case of an intervention with a universal design that must be offered only to a subgroup of a general population because of a lack of requisite resources, needs assessments can help in identifying that subgroup.

Efforts are currently under way to develop and apply prevention needs assessment technologies on a broad scale. A comprehensive State needs assessment effort is funded through CSAP (Center for Substance Abuse Prevention 1995a) and presently involves 18 States. Substance use problems, related risk and protective factor data, sociodemographic data, and resource availability are being variously collected at State, regional, county, and local community levels. Data collected in these States include family-related risk and protective factor data directly relevant to family-focused prevention interventions (Spoth et al. 1995a, b).

There are several practical advantages of needs assessments in a population targeted for family-focused prevention interventions. First, the types of data collected for a needs assessment can be used to assess prevention intervention outcomes. Such data can also be used to better target interventions, particularly indicated and selective ones, and to better prioritize the allocation of limited intervention resources. In addition, current prevention literature (e.g., Institute of

Medicine 1994) recommends the application of comprehensive, multicomponent interventions, such as a combination of school- and home-based programs (also see Conduct Disorders Prevention Research Group 1992; Pentz et al. 1989). Needs assessments can facilitate decisions about the optimal combination of family and other interventions in a given community. Finally, features of the type of needs assessments promoted by CSAP contribute to collaboration with local stakeholders. That is, needs assessments should involve representatives from multiple sectors of a community, including service providers, and can facilitate collaboration among them. In addition, the process of assessment can stimulate active support and cooperation from community residents.

### Intervention Acceptability and Consumer Research Methods

Even if prevention interventions are efficacious, they are of little practical use if they are perceived to be unacceptable to intended consumers. As part of tasks required for intervention efficacy research (step 3), the IOM (Institute of Medicine 1994) refers to the importance of designing an intervention so that it is acceptable and accessible. There has been limited attention directed toward issues of the acceptability and accessibility of family interventions in general and family-focused prevention interventions in particular. The limited literature does, however, suggest that family members' values and preferences concerning formal sources of help for mental health problems can create considerable barriers to service utilization (e.g., Spoth and Redmond 1993*b*; Spoth et al. 1996*e*).

Most of the literature concerning the implications of service-related values and preferences centers around treatment services. Although it is important to be mindful of the variability in service-related values and preferences among families, it is also important to distinguish between acceptability issues concerning prevention interventions vis-a-vis those concerning other mental health services. It seems important to attend to the fact that different types of interventions will vary in acceptability. Although it would be expected that less stigma would be attached to a prevention intervention (e.g., parent education) than to mental health services (e.g., for the treatment of depression), a prevention intervention may more likely be viewed as less acceptable on the grounds that it is less necessary (e.g., as compared with the necessity of treating a suicide threat). Moreover, the time and effort a prevention intervention requires may be perceived as a cost outweighing the benefits of preventing a problem in the future.

A noteworthy gap in the literature on the acceptability of family-focused prevention interventions is the application of consumer research methods to the study of family preferences for the various types of interventions that have been designed, especially those preferences specific to particular segments of the population. Project Family studies have employed a combination of conjoint and cluster analyses to address this knowledge gap (Spoth and Molgaard 1993; Spoth and Redmond 1993a; Spoth et al. 1996a).

As described in prior reports (e.g., Spoth and Molgaard 1993), conjoint analysis was used to measure the relative value that users place on specific attributes or features of a family prevention intervention program (also see Green and Wind 1975; Johnson 1974; Spoth 1989, 1990, 1991). It has theoretical underpinnings in mathematical psychology and psychometrics (Johnson 1974), has been widely applied in marketing research (Cattin and Wittink 1982), and has been subject to substantial study of reliability and validity (Bateson et al. 1987; Wittink and Walsh 1988). Moreover, conjoint analysis is well suited to assess consumer response to the addition or deletion of specific features of prevention interventions; this type of data can supplement the results of efficacy study in modifications of these interventions (Spoth 1992).

As indicated earlier, conjoint data collection procedures allow an estimation of the relative importance, or utility, that an individual attaches to the attributes of a product or service when these are considered jointly, rather than one at a time (Johnson 1987). Each attribute can be defined by two or more levels (e.g., the attribute program duration could have levels of 1 week, 5 weeks, 10 weeks, and 15 weeks). The goal of conjoint analytic procedures is to assign levels of each attribute a utility, sometimes called a part-worth, reflecting its relative importance to the consumer group of interest. To estimate the utilities in conjoint analysis, participants are presented with a set of possible intervention profiles, with each described as a combination of attribute levels. Perceived preference ratings for these intervention profiles are then obtained. Respondent reaction to only a small fraction of the total number of possible attribute-level combinations is sufficient to estimate their utilities.

In Project Family, a computer-guided telephone interview was used to present participants with sets of attribute combinations to compare. The computer software selected specific attribute level combinations, guiding selection of combinations that would most efficiently estimate attribute preference values. One of the related rating procedures guided by the computer software is illustrated in figure 5. A key advantage of the



collection of such ratings data is that family member preferences for actual interventions representing specific configurations of attributes can be estimated. Furthermore, cluster analyses can be used to assess conjoint analytic data to better understand population segment preferences; this type of market segmentation can guide intervention strategies for promoting interventions (see Spoth et al. 1996a).

### Developing Effective Research Partnerships

Current prevention intervention research models stress the benefits of researchers' collaboration with "stakeholders," local community members and others who have a stake in the prevention intervention and its outcome (Institute of Medicine 1994). Concurrently, there has been a call for collaborative, ecologically oriented prevention intervention research (Lerner 1994; Small, in press; Yoshikawa 1994). This collaborative approach entails involvement of local stakeholders in each step of the prevention intervention research process. Differences in the objectives, needs, and typical modus operandi of researchers, practitioners, and local stakeholders can create a number of barriers in collaborative prevention intervention research. Differences are often evident in preferred intervention strategies, ranging from those concerning recruitment for the intervention to its implementation and methods of evaluation. For example, Saylor and associates (1990) found that professionals differed considerably from participants in a family intervention when comparisons were made of perceptions of effective techniques for maximizing intervention participation.

The natural tension between local stakeholders and researchers has been frequently discussed by prevention program evaluators over the past two decades (Best et al. 1986; Burke et al. 1987; Gottman and Markman 1978; Green 1977, 1979; Windsor et al. 1984). Ultimately, the goal of the researcher is to disseminate generalizable research findings. Local community practitioners and laypersons differ from the researcher in that their goal is to implement an intervention (and, possibly, an evaluation) so that local needs are met. For researchers, issues of standardization in programming and evaluation, despite differences in population characteristics (e.g., economic base, cultural factors, community resources), are salient and must be addressed before conclusions can be confidently drawn and findings can be generalized. Collaborative research requires a balance between the researchers' needs regarding

Do you prefer Program A, Program B,  
or do you have no preference?

Do you slightly prefer this program  
or strongly prefer this program?

A.	<ol style="list-style-type: none"><li>1. Meets weekday evenings</li><li>2. Meets at school</li><li>3. Taught by child development specialist</li><li>4. Endorsed by parents</li></ol>	OR	B.	<ol style="list-style-type: none"><li>1. Meets weekend days</li><li>2. Meets at a church</li><li>3. Taught by parents</li><li>4. Endorsed by school administrators</li></ol>
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Strongly	Slightly	No	Slightly	Strongly
Prefer A	Prefer A	Preference	Prefer B	Prefer B
1	2	3	4	5
-----				

standardization and generalization and the practical needs of local stakeholders for local adaptation of intervention and evaluation procedures. Optimally, this type of research results in interventions that are adapted to local needs without compromising the integrity of the intervention.

One model of collaborative research is a large-scale project in Ontario targeting younger children (Peters and Russell 1994). In this project, research advisory groups in each of the intervention communities collaborate with onsite researchers and with a liaison from a core research team at Queen's University. This organizational mechanism has greatly facilitated the reconciliation of researcher and local stakeholder needs, as illustrated in the report by Peters and Russell (1994).

An articulated and promising approach to the prevention of child problem behaviors that encouraged collaboration between researchers

and community stakeholders was the functional contextualist framework (Biglan 1995*a, b*; Biglan and Hayes 1996). As applied to child problem behaviors, this conceptual framework emphasized community-level interventions designed to increase the prevalence of successful children in the community (Biglan 1995*a*, submitted for publication, 1996; Biglan et al. 1994). Following the careful selection of proven home-, school-, and media-based interventions, community organizational efforts were undertaken, involving the recruitment of a local agency or coalition to guide implementation, the assessment of all key sectors of the community, and the creation of a social network to support the entire effort. As presented by Biglan and colleagues, the key to success in community interventions was the mobilization of influential people and organizations and the application of consequences that motivated community groups to take actions involving effective interventions. This functional contextualist approach and the collaborative models referenced in the above paragraphs provided family-focused prevention intervention researchers with a range of viable options for forming partnerships with community stakeholders.

### Maximizing Recruitment and Retention

The IOM (Institute of Medicine 1994) prevention intervention research model also emphasizes the importance of identifying and securing cooperation from appropriate participants as part of the intervention efficacy study conducted under step 3. This task includes a number of substeps, including the development of effective strategies for recruitment and retention, as well as designing interventions to be sensitive to local culture and customs. There are a number of barriers to effective recruitment and retention of families into family-focused prevention interventions, one of which involves the incongruities between professional and local community approaches to interventions (e.g., Lerner 1994; Small, in press) noted earlier. In general, there is a dearth of guidelines in the literature concerning strategies for securing cooperation among diverse types of populations (e.g., Spoth and Redmond, submitted, 1995*b*), especially important when the interventions are universal.

A wide range of recruitment and retention-related issues and research questions has been examined in Project Family. These have included the aforementioned illustrative applications of consumer research methods to the evaluation of parent preferences concerning family-focused prevention interventions (Spoth and Molgaard 1993; Spoth and Redmond 1993*a*); market segmentation analyses of parents with young

adolescents (Spoth et al. 1996a); comparative differences in the outcomes of family recruitment strategies (Spoth and Redmond 1994); analysis of sociodemographic and health belief influences on family participation in these interventions, including the use of path-analytic approaches (Spoth and Conroy 1993; Spoth and Redmond 1995a; Spoth et al. 1993, submitted, 1995d); the retrospective study of parents' perceived barriers to intervention participation, using mail and telephone survey procedures (Spoth and Redmond 1993b; Spoth et al. 1996e); and the study of family participation using prospectively collected telephone survey data on theory-based predictors (Spoth et al., submitted, 1997a).

An overview of the studies outlined above has been presented elsewhere (Spoth and Redmond 1996b), as has been a summary of the lessons drawn from consideration of findings across studies, along with practical experiences in the implementation of family-focused prevention interventions (see Spoth and Redmond, submitted, 1995b). Selected findings from these studies will be used to make two points relevant to research issues in this chapter. The first point is that the nature of the barriers operating against family participation in universal or selective interventions warrants substantial levels of resources devoted to recruitment, with the expectation that, even with substantial recruitment resources, there may be lower than optimally desirable recruitment rates. The second point is that family members clearly exert influence on each others' decisions to participate, but patterns of influence are poorly understood. With a better understanding of these social influences, recruitment and retention strategies could be improved.

Despite generally high levels of involvement in parenting enhancement activities by the parents targeted by Project Family (e.g., 81 percent indicate that they read parenting materials—see Spoth and Conroy 1993), there are some major constraints on involving them in family-focused prevention intervention programs. Especially noteworthy are competing time demands or scheduling conflicts. For example, over several studies, competing time demands and scheduling conflicts repeatedly emerged as major barriers to parent participation, largely independent of parents' sociodemographic characteristics (e.g., Spoth and Redmond 1993a, 1993b, 1994; Spoth et al. 1996e). The results from two followup studies on reasons for refusal among nonparticipants are summarized in table 2.

**TABLE 2.** Summary of frequency results in studies of reasons for project refusal.<sup>a</sup>

Pilot Study		
Open-Ended Telephone Inquiry (N = 167)		
Reason for Project Nonparticipation	Number Citing as a Reason (%)	
Time and/or scheduling conflicts	86 (51.5)	
Not interested	38 (22.8)	
Other family member(s) did not want to participate	22 (13.2)	
Mail Questionnaire (N = 97 <sup>a</sup> )		
Reason for Project Nonparticipation	Number Citing as a Reason (%)	
Not enough time for parenting skills program	49 (57.6)	
Did not want to have family videotaped	49 (57.0)	
Inhome interview too long	37 (46.3)	
Did not wish to be the subject of research	37 (42.5)	
Trial Study		
Telephone Survey Concerning Nonparticipation in the Project Assessment (N = 459 <sup>b</sup> )		
Reason for Nonparticipation in Project Pretest	Number Citing as an Important Reason (%)	Number Citing as Somewhat of a Reason (%)
Could not find a time to schedule the interview	232 (52.4)	92 (20.8)
Did not want to be videotaped	180 (41.7)	95 (22.0)
Other member(s) of the family did not want to participate	99 (22.3)	92 (20.7)
Inhome interview too long	66 (16.5)	111 (27.8)
Questions would have been invasion of privacy	72 (16.3)	139 (31.4)
Telephone Survey Concerning Nonparticipation in the Project Interventions (N = 285 <sup>b</sup> )		
Reason for Nonparticipation in Project Interventions	Number Citing as an Important Reason (%)	Number Citing as Somewhat of a Reason (%)
Difficulty in attending meetings 5 (or 7) weeks in a row	186 (66.2)	69 (24.6)
Weeknight programs did not work well for family	169 (60.4)	57 (20.4)
Program would have taken too much of family's time	99 (35.4)	82 (29.3)
Already doing fine with parenting	91 (32.6)	117 (41.9)

<sup>a</sup>Summarizes results from several tables in Spoth and Redmond 1993b and Spoth et al. 1996e.

<sup>b</sup>The number responding to each item varied.

However, the specific ways in which these time-related barriers are operative in a local community are important to consider.

Intervention recruitment results from two Project Family efficacy studies illustrate a point about the need to understand how time-related barriers operate locally. Based on previously conducted family consumer research, the decision was made to offer an intervention on weekday evenings in both studies. However, an initial Project Family study offered families the option of attending sessions on either one of two weekday evenings. Given the logistical requirements of a subsequent study, an alternative approach was adopted. That is, inquiries were made to determine a single weekday evening that was least heavily scheduled with activities possibly attended by parents in the study; that evening was the only one during which a program was offered. The recruitment rate for the second study was substantially lower (by more than 20 percent); a combination of quantitative and anecdotal evidence indicated that the primary cause was the failure to offer two different evenings as options for attending the intervention in the second study.

The pattern of results in Project Family studies on participation factors suggests that competing time demands and scheduling conflicts may combine with unfavorable attitudes, beliefs, and intentions concerning family interventions, especially among certain segments of the general population, to form a kind of “glass ceiling” on recruitment rates. For example, a cluster analysis of skills training program attribute preferences has indicated that clusters of parents with young adolescents could be distinguished on the basis of parents’ preferred commitment of time and effort devoted to participation in program sessions (e.g., preferred number of sessions); a lower level of preferred effort was also associated with a lower level of prior involvement in parent education activities (Spoth et al. 1996a). Furthermore, a prospective participation predictor study has shown that a measure of inclination to enroll in parenting programs is associated with level of educational attainment (those with lower levels are more disinclined), as well as with perceived benefits and barriers of such programs (Spoth and Redmond 1995a). Notably, this inclination measure is predictive of actual enrollment 10 months following measurement (Spoth et al., submitted, 1995d). Lower levels of educational attainment have also been shown to be associated with less favorable attitudes toward family intervention research activities (Spoth et al. 1997a).

The findings summarized above suggest that, in at least one segment of the general population, attitudinal factors can combine with time-related concerns to create substantial barriers to recruitment.

Moreover, these barriers can be exacerbated when an intervention is part of a research study. As discussed previously, one of the key implications of this pattern of results is that it is imperative to devote the requisite resources to carefully designed, multicomponent recruitment strategies, in order to maximize schedule flexibility, minimize family time demands, and anticipate and address any concerns family members may have, especially when recruiting general populations. Relevant strategies have been discussed in other reports (Capaldi and Patterson 1987; Spoth et al. 1996*e*). One important facet of such strategies is the consideration of family decisionmaking processes and the reduction of resistance on the part of individual family members. Prior reports have noted that models attempting to explain preventive health behaviors focused on individual decisions or intentions to engage in health-related actions, and not family decisionmaking, such as family decisions about participation in family-focused prevention interventions (Spoth and Redmond 1993*b*). Despite the lack of relevant theoretical work, related empirical research indicates even when one or more family members are inclined to participate, the disinclination of one family member (spouse or child) can result in a refusal decision by the family (e.g., Szapocznik and Kurtines 1989; Szapocznik et al. 1988).

Project Family studies of family decisionmaking factors confirm that fathers are generally less inclined to participate in an intervention than are mothers, consistent with prior research on mothers' and fathers' participation in family interventions (e.g., Klitzner et al. 1990; Lengua et al. 1992). Fortunately, mothers are less likely to report being adversely influenced by their spouses' disinclination to attend than are fathers (Spoth et al. 1996*e*). Nonetheless, much further research is required to clarify the dynamics of family member influences on family recruitment processes and on effective strategies to minimize individual family member resistance to participation in various types of family-focused prevention interventions.

#### SPECIAL POPULATION STUDY

The premise of the preceding sections is that it is important to assess the acceptability of family-focused prevention interventions, as well as their sensitivity to target population needs and preferences, especially in the case of interventions targeting special populations. Illustrative research with one special population (rural families) was provided. However, there remains a general need for this type of research with other special populations and a specific need for the development of culturally sensitive interventions with these populations (see Small 1990).

## RESEARCH APPLICATIONS THAT PROMOTE FAMILY HEALTH

The fourth step of the prevention intervention research cycle focuses on the generalizability of intervention results and the transportability of an intervention to typical field conditions after being turned over to local administrators. During this fourth step, researchers need to clarify which intervention ingredients are essential and which ones can be adapted to meet local needs. After this work has been completed, it is appropriate for researchers to commence the work of field applications (step 5) and to consider optimal strategies for the dissemination of proven interventions (Rogers 1983).

### Research-Based Guidelines for Practitioners

Limited family-focused prevention intervention research has progressed through all of the IOM research phases, raising a key question: What are the optimal research-based guidelines on family-oriented interventions that can be promulgated to practitioners? Work by CSAP (Center for Substance Abuse Prevention 1995*b*) suggests a response to this question in the form of the previously referenced working draft of guidelines on family-centered approaches to prevent alcohol, tobacco, and other drug (ATOD) use among children. The content of this set of guidelines and the process used to develop it highlight (1) how researchers can facilitate dissemination of the state of the art to practitioners and (2) the challenges in doing so when dealing with complex family interventions, few of which have been evaluated through advanced phases of the research cycle. The following section summarizes the process used in the development of the guideline, its utility for practitioners, and the problems yet to be thoroughly addressed in developing such guidelines in the case of family-focused prevention interventions.

The protocol for development of guidelines was established through CSAP's Prevention Enhancement Protocols System (PEPS). PEPS has the objective of compiling, analyzing, and synthesizing existing knowledge on specific topics in the prevention of ATOD use, addressing the topic of family-centered approaches (Center for Substance Abuse Prevention 1995*b*). The purpose of this effort was quintessentially pragmatic, that is, to assist practitioners in States and communities in prevention program planning, resource allocation, and the matching of programming to the needs of various local populations. The development of individual guidelines began with a planning group of recognized experts who reviewed approaches to guideline development and formulated questions for specific guideline topics. A Federal resource panel for each guideline topic provided further policy-relevant and other information for guideline development. The Federal resource panel also recommends



candidates for an expert panel having the function of developing the guideline and planning for guideline distribution.

As suggested earlier, guideline development focuses on the careful evaluation of research evidence and prevention program documents concerning specific interventions or interrelated types of interventions. This evaluation follows a methodology that includes a protocol for the selection of published and unpublished intervention documentation and for the assessment of the validity of that documentation. The accumulated document-based evidence is synthesized, and its strength is assessed according to a set of rules of evidence. Rules of evidence criteria for the family-oriented intervention guideline evolved from an original set developed by medical clinicians, as illustrated in a medical practice guideline produced by the Federal Commission on Chronic Illness (1957). The purpose of these original rules of evidence was to provide guidelines to physicians on the most effective preventive care practices. An update on these guidelines was provided by the Agency for Health Care Policy and Research (AHCPR), as illustrated in its 1993 report (Agency for Health Care Policy and Research Depression Guideline Panel 1993), and served as a model for the CSAP guideline on family-oriented interventions.

The author's experience on the CSAP panel that is currently developing guidelines for family-oriented ATOD use prevention interventions suggests that the CSAP panel guidelines are potentially quite useful in the dissemination of research findings. In addition to a summary of the strength of evidence on specific prevention approaches, the family-oriented guideline will provide practitioners with (1) a summary of the current status of U.S. families, focusing on substance-related problems and risk factors, (2) theoretical models guiding interventions, (3) guidelines for developing and implementing programs, and (4) program resource information. However, several challenges encountered in the development of this guideline highlight the potential problems family prevention intervention researchers can face when developing and disseminating such guidelines.

There are several challenges associated with the fact that the strength of evidence guidelines for practitioners were originally designed to evaluate evidence for specific, relatively less complex medical intervention protocols. First, family interventions target multiple individuals interacting in family systems, not the single individual typically targeted in the case of medical practice. Thus, these family interventions are often complex and multicomponent when compared with the medical practice case, and the content of a specific intervention can evolve in a fairly dynamic way, with frequent changes in the actual intervention delivered across time and situation (e.g., the same intervention title may reflect different interventions).

Because of this, these interventions are more likely to deviate from written intervention standards, and different studies may yield results on superficially similar interventions that vary in important ways. Moreover, there is often a wide range of objectives targeted by family interventions, with likely variability in level of success across outcomes (i.e., a given intervention could be judged as effective for one outcome, but not for another). In the study of family interventions there is also variability in the measurement of identically or similarly labeled outcomes within and across intervention programs and across time; this challenges precise comparisons of observed outcomes across studies. Variability in sample composition, sampling procedures, and other methods exacerbates this problem.

Despite the formidable problems in apprising practitioners about the evidence concerning family-focused prevention interventions, a failure to synthesize research findings for practitioners willing to appropriately consider them in their practice seems even more problematic. Fortunately, several family-focused prevention researchers are currently engaged in the task of defining optimal methods of dissemination of research findings despite the aforementioned challenges (e.g., Center for Substance Abuse Prevention 1995*b*) and have made considerable progress.

### Facilitating Policymaking

Lerner (1994) noted that there is a dire need for a national policy on the development of healthy youth. He describes various sociodemographic trends over the last three decades that have jeopardized healthy child development. These trends have not been accompanied by adequate attention to their relevance for public policy. Family-focused prevention intervention researchers can play an important role in related policymaking, focusing on both youth development and family functioning.

Optimally, policymaking at the Federal level, as well as that at the local and State levels, should be informed by current research findings on family processes and family interventions. A discussion of the intricacies of the complex relationship between family-related research and various types of public policymaking lies well beyond the scope of this chapter. However, there are some important policy-related issues for family-focused prevention intervention researchers to consider, and it is appropriate to make some general points in this connection.

If it can be argued that there is an obligation on the part of the community of family-focused intervention researchers to facilitate the application of their work to meet the needs of families at risk,

they must seriously consider ways in which this research can inform relevant public policy. In so doing, challenges to the community of researchers are evident. As noted by Bronfenbrenner (1979) almost two decades ago, science needs public policy more than public policy needs science. Nonetheless, there is some evidence in the past two decades of success in the abilities of social science professionals to influence public policy.

The literature on psychologists' efforts to influence public policy, particularly health policy, suggests some useful points to consider in evaluating the optimal relationship between family-focused prevention research and public policy. One point noted in this literature is that researchers and other professionals need to better understand the personal nature of public policy and the political process (DeLeon et al. 1995; Vincent 1990). Optimal means of identifying recipients of appropriately communicated prevention intervention research findings need to be considered from this perspective. In assessing research priorities, the type of intervention-related research that is most useful to policymakers should be evaluated, including cost-effectiveness and cost-benefit studies (see Chatterji et al., this volume). In this vein, the benefit of facilitating field implementation and evaluation of well-designed and efficacious interventions should be considered (see Altman 1995). Also, studies designed to test the results of Federal and State policies should be promoted (Pierce and Gilpin 1995). However, in all matters concerning the application of research to policymaking, it is important that an empirical orientation remain at the forefront (Kaplan 1995).

#### STRENGTHENING THE FOUNDATION

##### Ethics and Research Priorities

IOM (Institute of Medicine 1994) noted several factors in research on the prevention of mental disorders that can complicate the already complex issues that generally apply to research involving human subjects. For further information on a wide range of basic ethical issues and complicating factors in prevention research, the reader is referred to the IOM report (Institute of Medicine 1994, pp. 397-405). Research on prevention interventions with high-risk young adolescents has raised additional issues concerning iatrogenic effects associated with aggregation of such high-risk youth in intervention groups (Dishion and Andrews 1995). The present discussion, however, focuses on one of the recommendations made in the IOM report, suggesting a type of moral imperative for family-focused prevention intervention researchers.

At several points in the IOM report, the argument is made that researchers need to be responsive to the needs of research

participants. Partnerships with members of the communities involved in the research are recommended. IOM cites an article by Trickett and Levin (1990) discussing how research partnerships can help in the identification and resolution of ethical issues. A related point is that families' needs should be carefully considered when deciding priorities for the allocation of limited research resources, at both the local and national levels.

Several elements should be balanced in the determination of research priorities; some potentially difficult analyses of tradeoffs may be required. For example, such analyses could involve a determination of how much of the limited research funding should be directed toward programs for families with children whose basic needs are threatened (see Carnegie Council on Adolescent Development 1995) versus families where although the child's basic needs are being met, there is likely to be a lack of appropriate nurturance and guidance (see Small 1990). Such analyses could also address the balance between the need for funding intervention efficacy research and the need for research focusing more directly on policymaking concerning policies that have large, direct, and immediate impact on one or more types of family needs.

## Development of Research Infrastructure

One of the most important issues in addressing priorities for future research in family-focused prevention interventions concerns the development of the infrastructure to support this research. Federally funded efforts directed toward setting the agenda for prevention research offer models to consider in addressing research infrastructure for the area of family-focused prevention intervention research.

The National Institute of Mental Health (NIMH) produced a report on a national research agenda for the prevention of mental disorders (National Institute of Mental Health 1993; also see Coie et al. 1993). In this report, various recommendations for the improved organization of the scientific effort were presented that were directly relevant to family-focused prevention intervention research. Similar to the purpose of the organizational recommendations made in the NIMH report, the appropriate organization and monitoring of scientific work are required to meet the needs of the growing field of family-focused prevention intervention research. This could include consideration of the organization of an advisory committee to address a variety of issues such as research priorities, collaboration among all agencies funding relevant research, collaboration and coordination among researchers focusing on this area of research, and technical assistance to researchers. Efforts to build the research infrastructure should also include consideration of the further development of specific and effective mechanisms for (1) training investigators in family-focused intervention research, (2) updating relevant grant review processes, (3) facilitating exchanges among researchers in this area, (4) facilitating multisite research programs, (5) facilitating dissemination of findings to practitioners and policymakers, and (6) linking with units in NIDA that can facilitate the development of the above mechanisms.

## CONCLUDING COMMENT

The literature suggests that the field of prevention science has matured (Coie et al. 1993; Institute of Medicine 1994; National Institute of Mental Health 1993). As indicated by Catalano and colleagues (this volume), a new paradigm of empirically based risk- and protective-focused prevention has emerged, and the practicality of this paradigm is indicated by the success of risk- and protective-focused interventions. In the author's view, the maturation of prevention science is most clearly revealed through a range of strategies that reflect attempts to better orient research toward practice. This chapter provides a number of illustrations of a stronger orientation toward practice. Some of the strategies illustrated entail benefits for practice that are relatively more subtle and indirect, such

as the benefits of more definitive findings on the efficacy of family-focused interventions obtained through improvements in the sensitivity of evaluation designs. Yet other strategies have obvious and direct benefits to practice, such as (1) the utility of improved methods for programmatically synthesizing etiological and other relevant research to guide optimal intervention design, (2) the application of consumer research methods to improve recruitment and retention, (3) the use of ecological and contextual approaches to research partnerships in communities, (4) the dissemination of the state-of-the-art research findings to practitioners, and (5) the appropriate application of research findings to policymaking. Although the sheer number and the complexity of the issues confronting family-focused prevention intervention research are daunting, the promising strategies for addressing these issues in a pragmatic manner underscore the potential for achieving the ultimate goal of intervention research—strengthening families.

#### REFERENCES

- Agency for Health Care Policy and Research Depression Guideline Panel. *Depression in Primary Care*. Vol. 1. Diagnosis and Detection. AHCPR Pub. No. 93-0550. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, April 1993.
- Aiken, L.S.; Stein, J.A.; and Bentler, P.M. Structural equation analyses of clinical subpopulation differences and comparative treatment outcomes: Characterizing the daily lives of drug addicts. *J Consult Clin Psychol* 62(3):488-499, 1994.
- Altman, D.G. Sustaining interventions in community systems: On the relationship between researchers and communities. *Health Psychol* 14(6):526-536, 1995.
- Auerbach, S.M. Assumptions of crisis theory and a temporal model of crisis intervention. In: Auerbach, S.M., and Stolberg, A.L., eds. *Crisis Intervention With Children and Families*. Washington, DC: Hemisphere Publishing, 1987. pp. 3-38.

- Bank, L.; Dishion, T.J.; Skinner, M.L.; and Patterson, G.R. Method variance in structural equation modeling: Living with "glop." In: Patterson, G.R., ed. *Depression and Aggression in Family Interaction*. Hillsdale, NJ: Lawrence Erlbaum Associates, 1990. pp. 247-279.
- Bateson, J.; Reibstein, D.; and Boulding, W. Conjoint analysis, reliability, and validity: A framework for future research. In: Houston, M.J., ed. *Review of Marketing*. Pittsburgh, PA: American Marketing Association, 1987.
- Best, J.A.; Cameron, R.; and Grant, M. Health behavior and health promotion. *Am J Health Promot* 1:48-57, 1986.
- Bierman, K.B. "Intervention Strategies to Improve Social Adjustment and Peer Relationships of Young Children with Conduct Problems." Paper presented at the Banff XXVI International Conference on Behavioral Science, Prevention and Early Intervention, Banff, Alberta, Canada, 1994.
- Bierman, K.B. "FAST TRACK: A Preventive Intervention for Conduct Disorder." Paper presented at the National Institute of Mental Health Workshop on Rural Mental Disorders Prevention Services Research, Bethesda, MD, 1995.
- Biglan, A. *Changing Cultural Practices: A Contextual Framework for Intervention Research*. Reno, NV: Context Press, 1995a.
- Biglan, A. Choosing a paradigm to guide prevention research and practice. *Drug Soc* 8(3/4):149-160, 1995b.
- Biglan, A. "Translating What We Know About the Context for Anti-Social Behavior Into a Lower Prevalence of Such Behavior." Manuscript submitted for publication, 1996.
- Biglan, A., and Hayes, S.C. Should the behavioral sciences become more pragmatic? The case for functional contextualism in research on human behavior. *Appl Prev Psychol Curr Sci Perspect* 5:47-57, 1996.
- Biglan, A.; Metzler, C.W.; and Ary, D.V. Increasing the prevalence of successful children: The case for community intervention research. *Behav Analyst* 17:335-351, 1994.
- Bronfenbrenner, U. *The Ecology of Human Development*. Cambridge, MA: Harvard University Press, 1979.
- Burke, J.A.; Becker, S.L.; Arbogast, R.A.; and Naughton, M.J. Problems and prospects of applied research: The development of an adolescent smoking prevention program. *J Appl Community Res* 15:1-18, 1987.
- Capaldi, D., and Patterson, G. An approach to the problem of recruitment and retention rates for longitudinal research. *Behav Assess* 9:169-177, 1987.
- Carnegie Council on Adolescent Development. *Great Transitions: Preparing Adolescents for a New Century*. New York: Carnegie Council of New York, 1995.

- Cattin, P., and Wittink, D.R. Commercial use of conjoint analysis: A survey. *J Mark Prof* 46:44-53, 1982.
- Center for Substance Abuse Prevention. *Compendium of Protocol Features in CSAP Prevention Needs Assessment Contracts*. Volume II. Rockville, MD: Center for Substance Abuse Prevention Division of State Prevention Systems, 1995a.
- Center for Substance Abuse Prevention. *Family-Centered Approaches to ATOD Problem Prevention*. (Working Draft). Rockville, MD: Center for Substance Abuse Prevention Division of State Prevention Systems, 1995b.
- Chen, H.T., and Rossi, P.H. Evaluating with sense: The theory-driven approach. *Eval Rev* 7:283-302, 1983.
- Chen, H.T., and Rossi, P.H. The theory-driven approach to validity. *Eval Program Plann* 10:95-103, 1987.
- Coie, J.D.; Watt, N.F.; West, S.G.; Hawkins, J.D.; Asarnow, J.R.; Markman, H.J.; Ramey, S.L.; Shure, M.B.; and Long, B. The science of prevention: A conceptual framework and some directions for a national research program. *Am Psychol* 48:1013-1022, 1993.
- Collins, L.M., and Horn, J.L. *Best Methods for the Analysis of Change: Recent Advances, Unanswered Questions, Future Directions*. Washington, DC: American Psychological Association, 1991.
- Collins, L.M., and Shanahan, M.J. "Design, Measurement, and Analysis Issues in Family-Based Prevention Research." Unpublished document. Pennsylvania State University, 1996.
- Conduct Disorders Prevention Research Group. A developmental and clinical model for the prevention of conduct disorder: The FAST Track Program. *Dev Psychopathol* 4:509-527, 1992.
- Conger, R.D., and Elder, G.H. (in collaboration with Lorenz, F.O.; Simons, R.L.; and Whitbeck, L.B.). *Families in Troubled Times: Adapting to Change in Rural America*. New York: Aldine de Gruyter, 1994.
- Cook, T.D., and Campbell, D.T. *Quasi-Experimentation: Design and Analysis Issues for Field Settings*. Chicago: Rand McNally, 1979.
- DeLeon, P.H.; Frank, R.G.; and Wedding, D. Health psychology and public policy: The political process. *Health Psychol* 14(6):493-499, 1995.
- Dishion, T.J., and Andrews, D.W. Preventing escalation in problem behaviors with high-risk young adolescents: Immediate and 1-year outcomes. *J Consult Clin Psychol* 63(4):538-548, 1995.
- Dishion, T.J.; Reid, J.B.; and Patterson, G.R. Empirical guidelines for a family intervention for adolescent drug use. *J Chem Depend Treat* 1:189-224, 1988.



- Duncan, T.E., and Duncan, S.C. Modeling the processes of development via latent variable growth curve methodology. *Struct Equ Model* 2(3):187-213, 1995.
- Dwyer, J.H.; MacKinnon, D.P.; Pentz, M.A.; Flay, B.R.; Hansen, W.B.; Wang, E.Y.; and Johnson, C.A. Estimating intervention effects in longitudinal studies. *Am J Epidemiol* 130(4):781-795, 1989.
- Federal Commission on Chronic Illness. *Chronic Illness in the United States*. Vol. 1. Cambridge, MA: Harvard University Press, 1957.
- Gordon, R. An operational classification of disease prevention. *Public Health Rep* 98:107-109, 1983.
- Gordon, R. An operational classification of disease prevention. In: Steinberg, J.A., and Silverman, M.M., eds. *Preventing Mental Disorders*. Rockville, MD: Department of Health and Human Services, 1987.
- Gottman, J.M., and Markman, H.J. Experimental designs in psychotherapy research. In: Garfield, S.L., and Gergin, A.E., eds. *Handbook of Psychotherapy and Behavior Change*. New York: Wiley, 1978.
- Graham, J.W.; Hofer, S.M.; and Piccinin, A.M. Analysis with missing data in drug prevention research. In: Collins, L.M., and Seitz, L.A., eds. National Institute on Drug Abuse Research Monograph 142. *Advances in Data Analysis for Prevention Intervention Research*. NIH Pub. No. 94-3599. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1994. pp. 13-63.
- Green, L.W. Evaluation and measurement: Some dilemmas for health education. *Am J Public Health* 67:155-161, 1977.
- Green, L.W. How to evaluate health promotion. *Hospitals* 53:106-108, 1979.
- Green, P.E., and Wind, Y. New way to measure consumers' judgments. *Harv Bus Rev* 53:107-117, 1975.
- Greenwald, P., and Cullen, J.W. The scientific approach to cancer control. *CA Cancer J Clin* 34:328-332, 1985.
- Hawkins, J.D.; Catalano, R.R.; Brown, E.O.; Vadasy, P.F.; Roberts, C.; Fitzmahon, D.; Starkman, N.; and Ransdell, M. *Preparing for the Drug Free Years: A Family Activity Book*. Seattle, WA: Comprehensive Health Education Foundation, 1988.

- Hawkins, J.D.; Catalano, R.F.; and Kent, L.A. Combining broadcast media and parent education to prevent teenage drug abuse. In: Donohew, L.; Sypher, H.E.; and Bukoski, W.J., eds. *Persuasive Communication and Drug Abuse Prevention*. Hillsdale, NJ: Lawrence Erlbaum, 1991. pp. 283-294.
- Hawkins, J.D.; Graham, J.W.; Maguin, E.; Abbott, R.; and Catalano, R.F. "Exploring the Effects of Age of Alcohol Use Initiation and Psychosocial Risk Factors on Subsequent Alcohol Misuse." Manuscript submitted for publication, 1996.
- Hoppe, M.J.; Wells, E.A.; Haggerty, K.P.; Simpson, E.E.; Gainey, R.R.; and Catalano, R.F. "Bonding in a High-Risk and a General Sample of Children: Comparison of Measures of Attachment and Their Relationship to Smoking and Drinking." Paper presented at the annual meeting of the American Society of Criminology, Phoenix, AZ, November 1993.
- Hops, H.; Biglan, A.; Sherman, L.; Arthur, J.; Friedman, L.; and Osteen, V. Home observations of family interactions of depressed women. *J Consult Clin Psychol* 55(3):341-346, 1987.
- Institute of Medicine. New directions in definitions. In: Mrazek, P.J., and Haggerty, R.J., eds. *Reducing Risks for Mental Disorders: Frontiers for Preventive Intervention Research*. Washington, DC: National Academy Press, 1994.
- James, W. *The Meaning of Truth, a Sequel to "Pragmatism."* New York: Longmans, Green, and Co., 1909.
- Johnson, R.M. Trade-offs analysis of consumer values. *J Mark Res* 11:121-127, 1974.
- Johnson, R.M. Adaptive conjoint analysis. In: Johnson, R.M., and Ketchum, I.D., eds. *Proceedings of the Sawtooth Software Conference on Perceptual Mapping, Conjoint Analysis, and Computer Interviewing*. Sun Valley, ID: Sawtooth Software, 1987. pp. 253-266.
- Johnston, L.D.; O'Malley, P.M.; and Bachman, J.G. *National Survey Results on Drug Use from the Monitoring the Future Study, 1975-1993*. Vol. 1. Rockville, MD: National Institute on Drug Abuse, 1994.
- Kaplan, R. Introduction and comment on the special section: Health psychology and public policy. *Health Psychol* 14(6):491-492, 1995.
- Klitzner, M.; Bamberger, E.; and Gruenewald, P.J. The assessment of parent-led prevention programs: A national descriptive study. *J Drug Educ* 20(2):111-125, 1990.

- Kosterman, R.; Hawkins, J.D.; Haggerty, K.P.; Spoth, R.; Redmond, C.; Larson, N.C.; and Zhu, K. "Preparing for the Drug Free Years: Program Session-Related Effects of a Parent Training Intervention With Rural Families." Manuscript submitted for publication, 1995a.
- Kosterman, R.; Hawkins, J.D.; Spoth, R.; Haggerty, K.P.; and Zhu, K. "Preparing for the Drug Free Years: Program Session-Related Effects on Videotaped Family Interactions." Manuscript submitted for publication, 1995b.
- Lengua, L.J.; Roosa, M.W.; Schupak-Neuberg, E.; Michaels, M.L.; Berg, C.N.; and Weschler, L.F. Using focus groups to guide the development of a parenting program for difficult-to-reach, high-risk families. *Fam Relat* 41:163-168, 1992.
- Lerner, R.M. *America's Youth in Crisis: Challenges and Options for Programs and Policies*. London: Sage, 1994.
- Lewin, K. *Field Theory in Social Science*. Selected theoretical papers. New York: Harper, 1951.
- Lewin, L.M.; Hops, H.; Davis, B.; and Dishion, T.J. Multimethod comparison of similarity in school adjustment of siblings and unrelated children. *Dev Psychol* 29(6):963-969, 1993.
- Lipsey, M.W. *Design Sensitivity: Statistical Power for Experimental Research*. Newbury Park, CA: Sage, 1990.
- Maslow, A. *Motivation and Personality*. 2d ed. New York: Harper and Row, 1970.
- Murray, D.M., and Hannan, P.J. Planning for the appropriate analysis in school-based drug-use prevention studies. *J Consult Clin Psychol* 58(4):458-468, 1990.
- National Institute of Mental Health. "The Prevention of Mental Disorders: A National Research Agenda." Report to the National Prevention Conference, 1993.
- Patterson, G.R.; Reid, J.B.; and Dishion, T.J. *Antisocial Boys*. Eugene, OR: Castalia Publishing, 1992.
- Pentz, M.A.; Dwyer, J.H.; MacKinnon, D.P.; Flay, B.R.; Hansen, W.B.; Wang, E.Y.; and Johnson, C.A. A multi-community trial for primary prevention of adolescent drug abuse: Effects of drug use prevalence. *JAMA* 261:3259-3266, 1989.
- Peters, R.D., and Russell, C.C. *Better Beginnings, Better Futures Project: Model, Program and Research Overview*. Ministry of Community and Social Services. Ontario: Queen's Printer for Ontario, 1994.
- Pierce, J.P., and Gilpin, E.A. A historical analysis of tobacco marketing and the uptake of smoking by youth in the United States: 1890-1977. *Health Psychol* 14(6):500-508, 1995.
- Pillow, D.R.; Sandler, I.N.; Braver, S.L.; Wolchik, S.A.; and Gersten, J.C. Theory-based screening for prevention focusing on

- mediating processes in children of divorce. *Am J Community Psychol* 19:809-836, 1991.
- Reid, J.B. Mediational screening as a model for prevention research. *Am J Community Psychol* 19:867-872, 1991.
- Rogers, E.M. *Diffusion of Innovations*. 3d ed. New York: Free Press, 1983.
- Rossi, P.H., and Freeman, H.E. *Evaluation: A Systematic Approach*. Newbury Park, CA: Sage, 1992.
- Russell, D.W.; Kahn, J.; and Spoth, R. "Analyzing Data from Rural Preventive Intervention Studies: A Latent Variable Path Analytic Approach." Manuscript submitted for publication, 1995.
- Saylor, C.F.; Elksnin, N.; Farah, B.A.; and Pope, J.A. Depends on who you ask: What maximizes participation of families in early intervention programs. *J Pediatr Psychol* 15:557-569, 1990.
- Small, S.A. *Preventive Programs That Support Families With Adolescents*. New York: Carnegie Corporation of New York, 1990.
- Small, S.A. Collaborative, community-based research on adolescents: Using research for community change. *J Res Adolesc*, in press.
- Spoth, R. Applying conjoint analysis of consumer preferences to the development of utility-responsive health promotion programs. *Health Educ Res* 4:439-449, 1989.
- Spoth, R. Multi-attribute analysis of benefit managers' preferences for smoking cessation programs. *Health Behav Educ Promot* 14:3-15, 1990.
- Spoth, R. Formative research on smoking cessation program attributes preferred by smokers. *Am J Health Promot* 5:346-354, 1991.
- Spoth, R. Simulating smokers' acceptance of modifications in a cessation program. *Public Health Rep* 107:81-92, 1992.
- Spoth, R. Challenges in defining and developing the field of rural mental disorder preventive intervention research. *Am J Community Psychol* 25(4):425-448, 1997.
- Spoth, R.; Ball, A.B.; Klose, A.; and Redmond, C. Illustration of a market segmentation technique using family-focused prevention program preference data. *Health Educ Res* 11:259-267, 1996a.
- Spoth, R., and Conroy, S. Survey of prevention-relevant beliefs and efforts to enhance parenting skills among rural parents. *J Rural Health* 9(3):227-239, 1993.
- Spoth, R., and Molgaard, V. Consumer-focused data collection in prevention program evaluation: Rationale and illustrations. *Eval Health Prof* 16(3):278-294, 1993.
- Spoth, R.; Ramisetty-Mikler, S.; and Goldberg, C. "Parent Reported Risk and Protective Factors for Substance Use Among

- Iowa Elementary and Middle School Children.” Report to the Center for Substance Abuse Prevention and the Center for Substance Abuse Treatment for the Iowa Department of Public Health, 1995a.
- Spoth, R.; Ramisetty-Mikler, S.; and Goldberg, C. “Teacher Perceptions of Risk and Protective Factors for Substance Use among Iowa K-8 School Children.” Report to the Center for Substance Abuse Prevention and the Center for Substance Abuse Treatment for the Iowa Department of Public Health, 1995b.
- Spoth, R., and Redmond, C. Identifying program preferences through conjoint analysis: Illustrative results from a parent sample. *Am J Health Promot* 8(2):124-133, 1993a.
- Spoth, R., and Redmond, C. Study of participation barriers in family-focused prevention: Research issues and preliminary results. *Int Q Comm Health Educ* 13(4):365-388, 1993b.
- Spoth, R., and Redmond, C. Effective recruitment of parents into family-focused prevention research: A comparison of two strategies. *Int J Psychol Health* 9:353-370, 1994.
- Spoth, R., and Redmond, C. Parent motivation to enroll in parenting skills programs: A model of family context and health belief predictors. *J Fam Psychol* 9:294-310, 1995a.
- Spoth, R., and Redmond, C. “Family Engagement in Competency Training Interventions: Cumulative Findings of Studies With Rural Families of Young Adolescents.” Manuscript submitted for publication, 1995b.
- Spoth, R., and Redmond, C. A theory-based parent competency model incorporating intervention attendance effects. *Fam Relat* 45:139-147, 1996a.
- Spoth, R., and Redmond, C. Illustrating a framework for prevention research: Project Family studies of rural family participation and outcomes. In: Peters, R., and McMahon, R., eds. *Childhood Disorders, Substance Abuse, and Delinquency: Prevention and Early Intervention Approaches*. Thousand Oaks, CA: Sage, 1996b.
- Spoth, R.; Redmond, C.; Haggerty, K.; and Ward, T. A controlled parenting skills outcome study examining individual difference and attendance effects. *J Marriage Fam* 57:449-464, 1995c.
- Spoth, R.; Redmond, C.; Hockaday, C.; and Shin, C. Barriers to participation in family skills preventive interventions and their evaluations: A replication and extension. *Fam Relat* 45:247-254, 1996e.
- Spoth, R.; Redmond, C.; Hockaday, C.; and Yoo, S. Protective factors and young adolescent tendency to abstain from alcohol use: A model using two waves of intervention study data. *Am J Community Psychol* 24(6):749-770, 1996f.

- Spoth, R.L.; Redmond, C.; Kahn, J.H.; and Shin, C. A prospective validation study of inclination, belief, and context predictors of family-focused prevention involvement. *Fam Process* 36(4):403-429, 1997a.
- Spoth, R.; Redmond, C.; Shin, C.Y.; Hawkins, J.D.; and Kosterman R. "A Replication Study of Universal Family Competency Training Outcomes Using Latent Variable Structural Equation Modeling." Paper presented at the National Institute of Mental Health 5th Annual National Conference on Prevention Research, McLean, VA, May 1996c.
- Spoth, R.; Redmond, C.; Shin, C.; and Huck, S. A protective process model of parent-child affective quality and child mastery effects on oppositional behaviors: A test and replication. *J School Psychol*, in press-c.
- Spoth, R.; Redmond, C.; and Yoo, S. "Sociodemographic Factors in Parents' Formal and Informal Help Seeking Concerning Adolescent Children." Manuscript submitted for publication, 1995d.
- Spoth, R.; Redmond, C.; Yoo, S.; and Dodge, K. Sociodemographic factors and parent beliefs relevant to the prevention of adolescent behavior problems. *Fam Perspect* 27(3):285-303, 1993.
- Spoth, R.; Yoo, S.; Kahn, J.; and Redmond, C. A model of the effects of protective parent and peer factors on early adolescent alcohol refusal skills. *J Prim Prev* 16:373-394, 1996d.
- Spoth, R.; Yoo, S.; Kosterman, R.; and Shin, C. Applying readily accessible graphical techniques to assess curvilinear relationships and detail outliers: The case of protective family processes. *Eval Health Prof* 20(3):353-364, 1997b.
- Szapocznik, J., and Kurtines, W.M. *Breakthroughs in Family Therapy With Drug-Abusing and Problem Youth*. New York: Springer Publishing, 1989.
- Szapocznik, J.; Perez-Vidal, A.; Brickman, A.L.; Foote, F.H.; Santisteban, D.; Hervis, O.; and Kurtines, W.M. Engaging adolescent drug abusers and the families in treatment: A strategic structural systems approach. *J Consult Clin Psychol* 56:552-557, 1988.
- Trickett, E.J., and Levin, G.B. *Paradigms for Prevention: Providing a Context for Confronting Ethical Issues*. New York: Haworth Press, 1990.
- U.S. Department of Health and Human Services. *Preliminary Estimates from the 1993 National Household Survey on Drug Abuse*. Advance Report No. 7. Washington, DC: Supt. of Docs., U.S. Govt. Print. Off., 1994.
- U.S. Department of Justice. Office of Juvenile and Delinquency Prevention. *Strengthening America's Families:*

- Promising Parenting and Family Strategies for Delinquency Prevention*. Washington, DC: U.S. Department of Justice, 1992.
- Vincent, T.A. A view from the Hill: The human element in policy making on Capitol Hill. *Am Psychol* 45:61-64, 1990.
- Wiese, M.R. A critical review of parent training research. *Psychol Schools* 29:229-236, 1992.
- Windsor, R.; Heard, R.; Reese, Y.; Morris, J.; and Bartlett, E. Smoking behavior and health beliefs of pregnant adolescents. *Patient Couns Health Educ* 5:118-122, 1984.
- Wittink, D.R., and Walsh, J.W. *Conjoint Analysis: Its Reliability, Validity, and Usefulness*. Sawtooth Software Conference on Perceptual Mapping, Conjoint Analysis, and Computer Interviewing. Sun Valley, ID: Sawtooth Software, 1988.
- Yoo, S., and Spoth, R. An alternative method for sample size determination in substance misuse prevention research. *Int J Addict* 28(11):1085-1095, 1993.
- Yoshikawa, H. Prevention as a cumulative protection: Effects of early family support and education on chronic delinquency and its risks. *Psychol Bull* 115:1-26, 1994.

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## APPENDIX—KEY CONCEPTS AND ASSOCIATED DEFINITIONAL ISSUES

### Definition of the Family

A review of the literature reveals varying implicit and explicit definitions of the family, reflecting considerable differences in concept inclusion-exclusion criteria. Definitions range from those with relatively narrow inclusion criteria to those substantially broadening the definition to include a wide variety of family structures or groups of continually interacting individuals (Center for Substance Abuse Prevention 1995*b*). Even among researchers defining the family in broad terms, the breadth of inclusion criteria differs. For example, Small (1990) proposes a broad definition and refers to “. . . a large variety of family structures (e.g., single parent, step or blended, adoptive, foster, two-parent)” (p. 29). However, in its working draft of guidelines for family-centered approaches to the prevention of substance abuse, CSAP defines the family even more broadly, “. . . as a group of interacting individuals who are related interpersonally over a continuous period of time and who share a social network as well as material and social sources of support” (p. xiii). Thus, the CSAP definition is broader because it does not rely on legal or blood ties.

As suggested in the introductory paragraph, the definition of the family determines the scope of the work to be considered within the confines of the prevention intervention research enterprise. It is reasonable to assume that the broader the definition of the family and the more varied the types of families considered, the larger the task of designing, implementing, and evaluating interventions becomes. If limited resources are available for family intervention research and the definition of the family drives the allocation of research resources, optimal priority setting is paramount, especially considering the critical role that intervention research can play in addressing the needs of families (Center for Substance Abuse Prevention 1995*b*). However broadly defined, it seems helpful to define the family as precisely as possible. Imprecision in the term “family” increases potential for inconsistent use of the term; inconsistencies among researchers in the definition of family can become an issue in generalizing research findings and in practical research applications, including the development of coherent Federal policies concerning the family.

## Definition of Prevention Research and Prevention Interventions

IOM (Institute of Medicine 1994) is careful to point out that only the steps involved in the investigation of prevention intervention processes and outcomes (steps 3 and 4 of the Preventive Intervention Research Cycle) constitute prevention intervention research per se. Although this research requires the review of findings from epidemiological and etiological research (steps 1 and 2), original studies in these areas are not considered prevention research, nor is facilitation of large-scale field implementation and intervention evaluation by researchers (step 5). Moreover, to be classified as prevention intervention research, a “rigorously designed” pilot study is required, at a minimum (Institute of Medicine 1994, p. 365).

When applied to family-focused prevention intervention research, the IOM definition obviously excludes basic research studies of family-related risk and protective mechanisms. It also excludes what some may consider a study, such as the collection of participant satisfaction data at the conclusion of a prevention program, at least if it is not part of well-designed programmatic research. Addressing the advantages and disadvantages of narrow versus broad definitions of prevention research extends beyond the confines of the current discussion. The primary point is that the definition of family-focused prevention intervention research can have important implications, not the least of which is delineating what is considered appropriate to fund with limited research resources. Therefore, it seems helpful to address this definition in the context of future research directions.

A related issue concerns the definition of prevention intervention. IOM (Institute of Medicine 1994) proposes a very specific definition of prevention intervention in the context of its report on the reduction of risk for mental disorders. That is, “. . . the term prevention is reserved for only those interventions that occur before the onset of a disorder” (p. 23). Applying this definition to the case of family interventions targeting substance-related problems raises some important issues. For example, the working draft of CSAP’s (Center for Substance Abuse Prevention 1995*b*) report on family-centered approaches to the prevention of ATOD use considered family therapy as an “indicated” prevention measure. The reasoning was that such therapy can help family members develop improved interpersonal skills as well as enhance parenting skills in a manner that improves family functioning (Center for Substance Abuse Prevention 1995*b*). In other words, family therapy can serve the purpose of family-related risk reduction for children who are at risk for substance abuse. However, researchers addressing prevention-related definitional issues (e.g., Gordon 1983) have noted the

importance of distinguishing between indicated prevention and treatment (see discussion in the next section). In addition, the implications of this broadened definition need to be considered in light of the requisite procedures for evaluating the efficacy and cost-effectiveness of family therapy as a prevention strategy vis-a-vis other family-risk reduction interventions that target skills-building to reduce problem behaviors among children (e.g., conduct-disordered boys).

### Universal, Selective, and Indicated Interventions

A number of typologies of prevention programs have been proposed over the past 40 years (Auerbach 1987; Federal Commission on Chronic Illness 1957; Gordon 1983, 1987; Institute of Medicine 1994). Gordon's (1983, 1987) typology of universal, selective, and indicated interventions has received considerable attention since it was proposed; it was adopted by IOM (Institute of Medicine 1994) in its report on the prevention of mental disorders.

Universal interventions are those that target the general public or a subcategory of the general public who show no signs of experiencing a condition or disease and are not at known risk for experiencing the condition or disease; the benefits clearly outweigh the costs for everyone. Selective interventions are those directed toward individuals who are members of a subgroup of the population whose risk of having a condition or disease is above average. Indicated interventions are those applying to persons identified individually as having a characteristic (e.g., risk factor) or abnormality that places them at high risk for a condition or disease. In this latter case, cost-benefit tradeoffs need to be closely examined (Gordon 1983). The inclusion and exclusion criteria in this typology of universal, selective, and indicated interventions (particularly those distinguishing universal and selective interventions) can be confusing and difficult to ascertain before the implementation of an intervention.

Gordon's (1983) intention in creating his classification scheme was to acknowledge that the etiology of mental disorders was sufficiently poorly understood and that the classification of primary, secondary, and tertiary prevention (implying an understanding of cause-effect or risk-disease relationships) was inappropriate. He thus proposed that prevention interventions be classified in a manner ". . . more closely linked to the *practical* (author's emphasis) considerations that govern proper application of preventive interventions" (Gordon 1983, p. 101). This alternative classification combines consideration of the targeted population group and the intervention's balance of benefits against risks and costs. However, a number of issues come to the fore in an application of this classification scheme to family-focused prevention interventions in part because (1) the scheme was

originally intended to be applied to medical disorders and not to mental disorders, with a primary focus on individuals rather than families, and (2) there is a lack of empirical work related to intervention costs and benefits in most areas of family-focused prevention intervention research.

Incorporating consideration of risk or cost and benefit criteria for classification purposes can be problematic. Because family interventions involve multiple individuals, and because there has been little empirical work on the costs and benefits (e.g., expected effect sizes) of family-focused interventions, it may not be safe to assume that interventions that target the general public (universal) or individuals in subgroups whose risk is higher than average (selective) will be cost beneficial. In addition, the distinguishing characteristics (e.g., level of risk of the population to which the intervention is applied) for the three types of interventions form continua, and it is not always clear at what points on these continua an intervention should be categorized one way or another (at least in the case of the universal or selective interventions). For example, the author's research focuses on interventions targeting families with students attending schools in districts with higher than average proportions of lower income families. Should this be considered a universal or a selective intervention? Researchers to whom this question has been posed have provided differing opinions. Related to this point, universal and selective interventions are not inherently of one type or another, because a given intervention can be applied to a universal (general) population at one time and to a selective population at another time. The ambiguities in definitional criteria have created difficulties in analyses and reporting of findings specific to each of the intervention categories (e.g., Center for Substance Abuse Prevention 1995*b*).

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