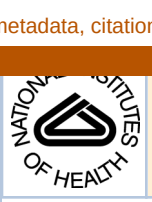

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Implementation of adolescent family-based substance use prevention programs in health care settings: Comparisons across conditions and programs

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Abstract

Background—The majority of knowledge related to implementation of family-based substance use prevention programs is based on programs delivered in school and community settings. The aim of this study is to examine procedures related to implementation effectiveness and quality of two family-based universal substance use prevention programs delivered in health care settings, the *Strengthening Families Program: For Parents and Youth 10–14* (SFP) and *Family Matters* (FM). These evidence-based programs were delivered as part of a larger random control intervention study designed to assess the influence of program choice vs. assignment on study participation and adolescent substance use outcomes. We also assess the effects of program choice (vs. assignment to program) on program delivery.

Methods—A mixed method case study was conducted to assess procedures used to maximize implementation quality and fidelity of family-based prevention programs delivered in health care settings. Families with an 11 year old child were randomly selected for study participation from health plan membership databases of 4 large urban medical centers in the San Francisco Bay Area. Eligible families were initially randomized to a Choice study condition (families choose SFP or FM) or Assigned study condition (assigned to FM, SFP or control group); 494 ethnically diverse families were selected for participation in study programs.

Results—Successful implementation of family prevention programs in health care settings required knowledge of the health care environment and familiarity with established procedures for developing ongoing support and collaboration. Ongoing training of program deliverers utilizing data from fidelity assessment appeared to contribute to improved program fidelity over the course of the study. Families who chose FM completed the program in a shorter period ($p<.0001$) and spent more time implementing program activities ($p=0.02$) compared to families assigned to FM. SFP “choice” families attended more sessions than those assigned to SFP (3.5 vs. 2.8), ($p=0.07$).

Conclusion—Program choice appeared to increase family engagement in programs. The goals and approach of universal family-based substance use prevention programs are congruent with the aims and protocols of adolescent preventive health care services. Future effectiveness trials should assess approaches to integrate evidence-based family prevention programs with adolescent health services.

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Keywords

Adolescent Substance Use Prevention; Family-based Programs; Implementation; Health Care Setting

BACKGROUND

Although there have been substantial efforts to develop and test interventions aimed at preventing adolescent alcohol, tobacco and other drug (ATOD) use, adolescent ATOD use remains a significant public health problem [1,2]. In 1997, the Substance Abuse and Mental Health Service Administration (SAMHSA) developed a Model Programs Initiative, originally the National Registry of Effective Prevention Programs (NREPP) and later called National Registry of Evidence-based Programs and Practices, which provided a review of existing ATOD prevention programs [3]. After a decade of experience reviewing programs in relationship to efficacy, in March of 2007, NREPP was reorganized to focus on issues associated with translation of evidence-based programs and practices to "real world" settings [4,5]. Researchers were asked to focus their efforts on examining issues related to *program implementation* and *readiness for dissemination* that could assist the field of prevention research in moving from evidence to practice [5,6].

The majority of knowledge related to implementation of adolescent ATOD prevention programs has been based on programs delivered in schools and in community settings that use schools as sites to recruit families for 'home-based" programs [7–11]. To our knowledge, there have been no published reports assessing issues related to implementation of evidence-based adolescent family ATOD prevention programs delivered in health care settings. Health care settings represent an existing community infrastructure for delivering family-based prevention programs. Families have frequent interaction with healthcare providers throughout a child's development creating opportunities to integrate family ATOD prevention programs with the delivery of adolescent health care services. The approach of family-based universal prevention programs is consistent with ATOD related screening and anticipatory guidance provided as part of regularly scheduled well-teen visit protocols recommended by the American Medical Association's Guidelines for Adolescent Preventive Services [12]. The priority for broad dissemination of evidence-based programs in settings that have potential to sustain efforts over time suggests the importance of examining issues related to implementation of ATOD prevention programs in health care settings [4,13].

The focus of this paper is to examine factors that influence the effectiveness of program implementation of two family-based adolescent ATOD universal prevention programs delivered in a health care setting: the *Strengthening Families Program: For Parents and Youth 10–14* (SFP) [14] and *Family Matters* (FM) [15]. We also assess the effects of program choice (vs. assignment to program) on program delivery. These programs were delivered as part of the Families Being Together (FBT) project, an adolescent family-based universal ATOD prevention study funded by NIAAA, conducted in four Kaiser Permanente (KP) Medical Centers located in the San Francisco Bay Area Region. Both programs have demonstrated efficacy in reducing adolescent ATOD use when delivered in school and community settings [15,16] and are identified as model programs by NREPP [6]. We were interested in documenting the steps and procedures used to implement family-based prevention programs in health care settings including 1) strategies used to develop collaboration and ongoing support within the health care setting, 2) program delivery staffing and initial training, 3) fidelity assessment as a quality improvement strategy and 4) implementation monitoring results including the influence of program choice on program delivery.

METHODS

Families Being Together (FBT) study overview

The aims of the larger FBT study are to assess the influence of providing a choice of program vs. assignment to program on study recruitment, retention, program participation and adolescent ATOD outcomes. Although both programs share the goal of preventing adolescent ATOD use by reinforcing family protective behaviors and decreasing risk behaviors associated with adolescent ATOD use, the programs utilize substantially different program delivery formats. FM is a telephone support/home-based program and SFP is family group session program conducted at Medical Center sites.

Study procedures and recruitment

Families with an 11 year old child who received care at one of the four participating Medical Centers were randomly selected from membership databases in November 2005. An initial letter was sent to parents to explain the study and to notify families that they might receive a telephone call regarding participation in the study. Families were excluded if they did not have functional literacy in English or if their child was engaged in substance abuse treatment. Eligible families were randomly assigned to one of two study conditions: *Choice Condition* that allowed families to select either FM or SFP or *Assigned Condition* that resulted in families being randomly assigned to FM, SFP or a control group. A total of 614 families enrolled in the study and completed in person interviews which were conducted separately for the mother/female guardian and the adolescent at the Medical Center sites. Families were informed that they would be contacted to complete two follow-up telephone interviews, at one year and two years post baseline interview. After completion of the baseline interviews, families in the Assigned Condition (N=342) were informed of their group assignment (FM, SFP, or Control Group) and families in the Choice Condition (N=272) were provided brief program descriptions from which they were asked to select their program preference. SFP families were offered two potential days/times when sessions would be conducted at their Medical Center site and FM families were presented with the first of the four program booklets and informed that a health educator would call them to follow-up. Study procedures were approved by the Institutional Review Boards of Kaiser Foundation Research Institute (KFRI) and Pacific Institute of Research and Evaluation (PIRE).

Description of study programs

Theoretical models for both programs emphasize the important influence of family protective factors and resiliency processes in preventing or delaying the initiation of adolescent substance abuse and related behavioral problems [17]. Both programs include content materials and skill building activities designed to increase parent understanding of adolescent challenges and to improve parenting skills, such as positive encouragement, communication skills, family rules/limit setting/ using consequences, ATOD specific rules and monitoring. Both programs include activities designed to improve youth social skills and peer resistance skills.

Although the learning objectives of both programs are similar, the program format and structure emphasize significantly different approaches to learning. FM program delivery is flexibly structured with each of 4 program booklets mailed successively to parents with follow-up telephone support provided by Health Educators (HEs) to encourage completion of program activities and to address issues that parents may raise. The parent has the responsibility for implementing program activities with the adolescent and other family members in the home environment. SFP is a highly structured interactive group session program facilitated by HEs and conducted in 7 weekly sessions at Medical Center sites at

specific times/dates. Each session includes a 1 hour session during which parents and youth meet separately in a group, followed by a 1 hour family session where families practice skills learned in the first hour. Parent sessions utilize instructional videotape segments with family actors modeling scenarios illustrative of program concepts followed by timed group discussions and interactive exercises. While FM highlights flexibility of program implementation and parent integration of program activities with family schedules, SFP focuses on group learning, modeling of skills and behaviors and includes an adolescent peer group component.

Description of the HMO health care setting

The Medical Centers considered for our study are part of Kaiser Permanente (KP), an integrated Health Maintenance Organization (HMO) system providing comprehensive health care to 8.7 million members nationally and 3.2 million members in Northern California. There are 15 KP Medical Center campuses located in the San Francisco Bay Area Region that serve approximately 30% of the population. KP provides health education programs designed to promote healthy lifestyles and prevent risk behaviors as part of health care services. The potential for integrating evidenced-based family ATOD prevention programs within a health care delivery system that has capacity for broad based dissemination of programs was an important consideration for selecting this health care setting for the FBT study.

Strategies used to develop collaboration within the health care setting

Presentation of study to HMO leadership groups—We presented an overview of the study at the quarterly regional Adolescent Specialist meeting attended by Teen Clinic leaders from KP Medical Centers throughout Northern California. This clinical leadership group is responsible for implementing adolescent health policies and programs. Clinicians conveyed that although brief ATOD screening and anticipatory guidance are included in well teen visit protocols, there were no family-based ATOD prevention programs available for interested teens and families concluding that the study identified an important gap in service that could offer significant benefit to teens and families.

Selection of study site and “Study Champions”—From these initial discussions, we selected a list of potential study sites. Because program delivery staff would need to travel to Medical Center sites for delivery of the SFP program and to the central HMO Research offices for training functions and for FM program delivery, we considered Medical Centers that were less than 1½ hour travel time from the HMO Research Office site. We examined practical considerations such as interest of key personnel in participating and sufficient space resource for study programs. The four Medical Centers selected to participate in the study included two located in densely populated urban centers and two in suburban communities. An Adolescent Medicine Specialist was identified as a “Study Champion” for each participating site who had responsibility to represent the study to all key Medical Center stakeholders. Procedures for conducting research studies at Medical Centers required obtaining approvals from each participating Medical Center from the Physician-in-Chief, Medical Center Research Chair and the Department Chief(s) for each department involved in the study.

Collaboration with Health Education (HE) Managers—Initially our plan was to incorporate program delivery as part of the existing HE programs offered to HMO members and to utilize KP HEs to deliver study programs. However, it was not feasible to coordinate HE Department priorities within the research study timeline. Because HE Managers play an important role in the dissemination of prevention programs to health plan members, it was important they be involved in the early stages of planning.

Site-based implementation team—Inclusion of study team members with HMO work experience provided important "insider" information related to HMO policies and procedures. At each participating Medical Center, a department manager served as the primary contact for problem resolution and day-to-day study management issues. We were cautioned that study activities should not infringe on the work tasks of health care staff and that study staff adhere strictly to the requirements of HIPAA (Health Insurance Portability and Privacy Act) Privacy Rule which protects the privacy of individually identifiable health information.

Program delivery staffing and initial training

Program staffing—FM program staffing included HEs who were required to work late afternoon/ evenings and some weekend hours to make weekly phone contact with families. Because new cohorts of participants were enrolled throughout the study period and families completed the program at different rates, HEs were simultaneously engaged in contacting families who were at various stages of program completion. SFP staffing included 2 HEs and 1 site coordinator. One HE facilitated the parent session while another HE facilitated the youth session and both HEs worked together to facilitate the family session. The site coordinator provided support to the youth HE during the youth session, set up video-recording, collected HE and participant assessment data and managed issues related to logistics.

Initial program delivery training—The program specific training was conducted by the original program developers for SFP and FM utilizing training manuals and methods adapted from previous intervention trials. Trainers stressed the important role of HEs in conveying program concepts and skills through modeling interactions with families and engaging family participation in program activities.

Fidelity assessment as a quality improvement strategy—This paper focuses on the utilization of fidelity assessment for ongoing training to improve program delivery. A separate manuscript details fidelity procedures used to measure program adherence over the course of the study [18]. Fidelity assessments were conducted by research staff separate from program delivery staff using procedures adapted from fidelity assessment protocols previously used by the study program evaluators. All SFP group sessions were videotaped and all FM HE-parent telephone contacts were automatically recorded using the Telestat system. A random sample of videotapes and audiotapes was reviewed and summary ratings were calculated for two categories: "implementation" defined as completeness of delivery of program components and "quality" defined as HE presentation style and interaction with participations.

After delivery of the first cohort of program sessions, we utilized fidelity assessment data to present in-depth feedback to HEs to allow them to incorporate suggestions to improve program adherence for the remaining rounds of program delivery. The research staff conducting fidelity assessments provided notes to explain rating decisions outside the norm to provide specific data that would be useful to HEs on how to improve adherence and quality of program delivery. HEs had the opportunity to review program delivery videotapes for SFP and audiotapes of FM telephone discussions illustrative of exemplary practices or those requiring improvement. As a group, HEs shared strategies to improve adherence.

Program delivery issues identified by fidelity assessment—Program delivery guidelines for both programs emphasized the importance of staying on script, timeliness and exactly following the program manual instructions while at the same time engaging participants in an interactive learning style and responding to family's questions and

concerns. HEs were reminded that to allow for a "fair" assessment of program outcomes participants must receive the same content and dose of program activities and that adding to or changing the program content would lower program fidelity. Examples of *SFP delivery issues* included "keeping on time" by preparing visual aides ahead of time and having the learning environment "set up" prior to the session. The importance of keeping the program moving by guiding discussions was emphasized compared to stopping or fast forwarding program videotape segments. *FM program delivery issues* included the importance of positive feedback and encouraging timely completion of program activities. If the family did not complete some or any of the activities the health educators were trained to assist with problem-solving strategies to encourage completion.

IMPLEMENTATION MONITORING RESULTS

Program adherence and fidelity improved over time

Throughout the program delivery, HEs were able to deliver both programs meeting the standards for quality of program delivery established by the program developers. As was expected, there were improvements in adherence as individuals gained experience in program delivery. Implementation fidelity scores improved over the course of the study, for example, the average SFP "implementation" fidelity scores for Round 1 were 66% and for Rounds 3–6 averaged 80%. SFP fidelity scores for "quality" measures remained stable at 66–67%. FM fidelity overall summary scores calculated for Round 1 and 2 were 62% and for Rounds 3,4,5 and 6 increased to 66%.

SFP implementation monitoring (Table 1)

The SFP program was administered to 235 families from January 2006 to May 2007. The total time that families spent per week on SFP was estimated to be 2.5 hours (2 hours for group sessions and approximately 30 minutes of home activities). The average number of families enrolled for each SFP was nine with a range of 6–17 families. Thirty-seven percent of families never attended an SFP session, 47% attended four or more sessions and 16% attended all seven sessions. The mean number of sessions attended for all SFP families including those who never attended any sessions was 3.2 (SD 2.9) and for families who attended at least one session were 5.0 (SD 2.0). The average time families spent participating in program activities for all families was 8.0 hours, for those attending at least one session was 12.5 hours and for those attending all 7 sessions was 17.5 hours. For all SFP families, there was a trend for families in the Choice condition to attend more sessions than those in the Assigned condition (3.5, SD2.9 vs. 2.8, SD2.8, p= 0.07). Choosing program did not influence program attendance for those who attended one or more sessions indicating that program choice was primarily related to the initial decision to participate.

FM implementation monitoring (Table 2)

The FM program was administered to 261 families from March 2006 to June 2007. Eleven percent of families did not complete any of the 4 program booklets, eighty-nine percent of families completed at least one booklet and 66% completed all four. Booklets were considered completed when >50% of the activities included in each booklet were confirmed completed by the HEs during the follow-up phone call. The HE assessment of completed activities for each booklet was based on parent responses to questions that elicited specific descriptions of how, when and with whom the program activities were conducted. Families who completed the program (all 4 booklets) spent an average of 16.4 (SD 6.5) weeks in the program calculated from the first telephone call with the parent. The mean total amount of time that parents reported their family spent on FM program activities was 3.9 (SD 2.7) hours for families who completed at least one booklet and 5.2 (SD 2.5) hours for those completing all four booklets. Of the total calls, 1,933 (39%) were calls where the HE talked

with a parent. The average number of total calls to each family was 19.5(SD 11.3), while the mean number of calls that reached a parent was 7.8 (SD7.8). Health educators spent an average of five minutes for every call where they reached a parent and 9.7(SD 4.2) minutes for calls where a booklet was completed.

Families who were in the Choice condition (vs. the Assigned condition) completed the FM program over a significantly shorter duration and spent more actual time on the program, however, there was no difference between Choice and Assigned groups in the number of booklets completed. More calls were made to families in the Assigned condition and the duration of calls where a booklet was completed was longer for families in the Assigned condition. These results are indicators of the increased time and effort required by HEs to deliver the FM program to families in the assigned vs. choice condition.

DISCUSSION

Summary of findings

Successful implementation of family prevention programs in health care settings required knowledge of the health care environment and familiarity with established procedures for developing ongoing support and collaboration. Initial training utilized training materials and procedures used in previous research trials while ongoing training incorporated data from fidelity assessment to maximize program adherence. For FM, families choosing programs (vs. assigned) completed the program in less time and spent more time completing program activities creating less demand for program staff time and resources; however, program choice did not impact the overall completion of program components. SFP families in the Choice condition trended toward increased participation in program sessions.

Program implementation in health care setting: Lessons learned

Early involvement of Medical Center decision-makers was important to ensure successful delivery of family-based programs. Inclusion of an HMO health service researcher as part of the study team provided “insider” knowledge of policies, procedures and key contacts important to developing a successful collaboration. Researchers and program deliverers were required to be flexible in adapting research procedures and timelines to the priority functions of Medical Centers. Programs using site-based delivery of group sessions require significantly more program delivery resources and coordination with health care staff compared to telephone support/home-based programs. Addressing issues related to program fidelity in the initial stages of program delivery appeared to result in improvements in program delivery over time.

Impact of program choice on program delivery

Although for FM, program choice did not significantly impact actual program completion, “choosing” did significantly influence the quality of families’ engagement in the program and program delivery resources required to implement the program. Families who choose programs may have been more motivated to participate in program activities creating less demand for program staff time and resources. While SFP “choice” families trended towards increased attendance in program sessions, we did not have data that allowed us to assess the impact of program choice on the quality of family engagement in the program or resources required to delivery the program.

Limitations

Because the structure and format of programs differed substantially, many elements of program delivery could not easily be compared between programs. For example, because FM was a self-administered program, the amount of time families spend implementing

activities varied substantially while SFP families attending scheduled sessions generally participated in the 2 hour session.

CONCLUSION

Our study demonstrated that family-based prevention programs could successfully be implemented in urban and suburban Medical Centers with ethnically diverse families. The approach of universal family-based ATOD prevention programs is congruent with the aims and protocols of adolescent preventive health care services presenting significant opportunity for integration of evidence-based programs with adolescent health services. Providing a choice of evidence-based family programs with substantially different formats is a recommended strategy for engaging families in prevention programs in health settings. Addressing issues related to implementation of family-based prevention programs will be important to future effectiveness trials and dissemination of programs in health care settings. Future efforts could increase the level of integration of family-based ATOD prevention programs with adolescent health care by incorporating these programs within the structure of existing health education programs offered by health plans and by involving clinicians in recommending programs.

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Table 1

SFP implementation monitoring: Association between program choice and attendance

SFP implementation characteristics	Overall Mean (SD)	Choice Mean (SD)	Assigned Mean (SD)	T test (P value)
All SFP families, N = 235 Total Sessions attended *	3.2 (2.9)	3.5 (2.9)	2.8 (2.8)	1.8 (0.07)
Families attending at least 1 session, N=149 Total sessions attended *	5.0 (2.0)	5.2 (2.0)	4.8 (1.9)	1.8 (0.24)

* Total possible sessions = 7.

Table 2

FM Implementation monitoring: Program choice vs. program assignment

FM Measures*	Mean(StdDev) N=232	Choice+ N=142 (61)	Assigned++ N=90 (39)	T test P value
Program duration (wks) Participants who completed at least 1 booklet, N = 232 From receiving 1st call Participants who completed program, all 4 booklets, N = 172 From receiving 1st call	16.4 (6.3) 16.4 (6.5)	14.9(5.1) 15.0(5.3)	18.7(7.1) 18.6 (7.5)	−4.4 (<.0001) −3.6 (0.0005)
Total time families spent implementing program activities (hrs) Time for families completing at least one booklet Time for families completing program (all 4 booklets)	3.9 (2.7) 5.2 (2.5)	4.1(3.0) N = 138 5.5(2.8) N = 81	3.5 (2.2) N = 83 4.5 (1.7) N = 35	1.5 (0.18) 2.3 (0.02)
Phone calls by HE to family ** Number calls to each family Number calls reached parent, for each family Duration in minutes of calls where reached parent (N = 1354 calls Duration in minutes of calls where booklet completed (N=555 calls)	19.5 (11.3) 7.8 (7.8) 5.0 (5.1) 9.7 (4.2)	18.2 (9.8) 7.3 (3.4) 5.0 (4.7) 9.4 (3.9)	21.4 (13.0) 8.4 (4.7) 5.3 (6.2) 11.1 (5.1)	−2.1 (0.04) −2.0 (0.05) −0.9 (0.36) −3.0 (0.003)
Total booklets completed (of 4) All FM families, N = 261	3.0 (1.5)	3.1 (1.4)	2.9 (1.6)	0.95 (0.35)
Total booklets completed (of 4) Families completing at least one booklet, N=232	3.4 (1.1)	3.3 (1.2)	3.4 (1.1)	−0.33(0.74)

*N varies slightly due to missing data for those that completed at least 1 booklet (N = 232) and for those that completed the program/4 booklets (N= 172). Measures represent those with non-missing data. 29 families who were assigned or chose FM but did not complete any booklet are excluded from this analysis.

**Phone calls calculated for all families

+N for Choice condition: completed >= 1 booklet is 139 calculated from baseline interview and 133 from the first telephone interview; completed all 4 booklets, N = 99 calculated from baseline interview and 95 calculated from 1st telephone interview

++N for Assigned condition: completed >=1 booklet is 89; completed all 4 booklets, N = 65