
Parent and child characteristics related to chosen adolescent alcohol and drug prevention program

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Abstract

Mothers were allowed to choose between two different family-based adolescent alcohol–drug prevention strategies and the choice was examined in relation to parent and teen characteristics. Under real world conditions, parents are making choices regarding health promotion strategies for their adolescents and little is known about how parent and teen characteristics interact with programs chosen. The two programs were: Family Matters (FM) (Bauman KE, Foshee VA, Ennett ST *et al.* Family Matters: a family-directed program designed to prevent adolescent tobacco and alcohol use. *Health Promot Pract* 2001; 2: 81–96) and Strengthening Families Program (SFP) 10–14 (Spoth R, Redmond C, Lepper H. Alcohol initiation outcomes of universal family-focused preventive interventions: one- and two-year follow-ups of a controlled study. *J Stud Alcohol Suppl* 1999; 13: 103–11). A total of 272 families with an 11–12 years old enrolled in health care centers were in the choice condition of the larger study. SFP requires group meetings at specified times and thus demanded more specific time commitments from families. In contrast, FM is self-directed through booklets and is delivered in the home at a time chosen by the families. Mothers were

significantly more likely to choose SFP when the adolescent had more problem behaviors. Mothers with greater education were more likely to choose FM. Findings may provide more real-world understanding of how some families are more likely to engage in one type of intervention over another. This understanding offers practical information for developing health promotion systems to service the diversity of families in the community.

Introduction

In real-world conditions, families are not assigned randomly to prevention programs. Yet, efficacy studies for prevention are largely based upon the ‘gold standard’ of the random control trial (RCT) design [1]. Relatively little information exists regarding the interactions between choice of programs and participant characteristics. For health promotion programs, the willingness to participate in the absence of any substantive problem is key to the notion of prevention. In real-world conditions, families may be more willing to engage in program deliveries and embrace prevention strategies when choice is offered. Furthermore, parent and adolescent characteristics may influence the type of program chosen. Examining the decision outcomes in

relation to participant characteristic may also provide more targeted services to address the diversity of groups within the general population.

Making program choices regarding the type, whether to attend and whether to engage fully in programs may be expected to interact with racial/ethnic characteristics of the population and with the socioeconomic conditions of the family. For example, for family-based prevention programs for adolescents, parent characteristics may influence the level of participation in family-based approaches and the level of recruitment needed [2]. For example, results indicate that parents who needed low recruitment effort and participated in more program sessions were more likely to be Latino than African American. In contrast, parents who needed much recruitment effort yet participated in many sessions tended to have higher rates of antisocial behaviors and greater stress levels.

Parenting style is another important parenting practice. Authoritarian parenting style reflects parenting that uses high levels of control and low levels of support or encouragement of the youth's autonomy [3]. Parents with authoritarian styles thus may prefer to lead program activities for their child and have greater input as to program content [2]. Permissive parenting style reflects parenting with low levels of control but high levels of warmth and support [3]. Parents with a more permissive style of parenting may view the structure of some programs as being too regimented or rule oriented.

An important parental practice is monitoring, in that greater levels are associated with decreases in adolescent problem behaviors [4–6]. However, lower levels may be related to more interest in learning parenting behaviors that would help parents guide adolescents away from problem behaviors. For example, parents with lower levels of monitoring have been more likely to participate, possibly due to more interest in learning new strategies [2]. Parents with lower levels of monitoring may require more direct engagement in a face-to-face manner for learning techniques of parental monitoring. In contrast, parents with some self-efficacy regarding their ability to monitor their adolescents may not perceive the need for direct interaction with parenting experts.

Parental choice of health promotion strategies may also be related to their perception of their adolescent's characteristics and/or needs. For example, prior studies suggest that parents who perceive their child as more susceptible to problem behaviors (e.g. delinquency, depression, hostility) are more willing to invest of time and energy into intervention strategies and participate in family-based prevention programs [7, 8]. Specifically, families participated more if parents thought their child was likely to smoke in the future and if the parent thought their child did not smoke at the time [7]. Similarly, parents who rated their child as likely to engage in problem behaviors (e.g. alcohol use, affiliation with deviant peers, poor grades in school) were more likely to enroll in a family-based program, although they did not have greater participation rates in the program [8].

In this paper, we examine whether parental choice of a health promotion strategy for preventing adolescent alcohol–drug use is related to either parental or adolescent characteristics. Two different family-based prevention programs designed to address adolescent alcohol and other drug use were offered to a subset of families in a larger study conducted to examine the impact of choice on outcomes, engagement and retention for the program (NIAAA ‘Adolescent Family-Based Alcohol Prevention’ R01-AA015323-01, 2005-2010, Brenda A. Miller, PI). The two family-based adolescent alcohol–drug prevention programs were Family Matters (FM) [9] and Strengthening Families Program (SFP): for parents and youth 10–14 [10]. Our research questions include: i) Are parenting demographics and/or characteristics more likely to be associated with choosing one type of program over another? ii) Are adolescent demographics and/or characteristics more likely to be associated with choosing one type of program over another?

Materials and methods

Sample

The current study is part of a larger study designed to examine effects of having a choice of family-

based programs (versus being assigned to a program) on recruitment, retention and outcomes. The sample was drawn from four Kaiser Permanente (KP) medical centers in the San Francisco Bay Area chosen to represent a diversity of socioeconomic statuses, ethnicities and neighborhoods. KP provided a list of all families with an 11- or 12-year-old child ($N = 5219$), and the families were randomly assigned to either the choice or assigned condition. From this group, we randomly selected 3230 to contact by phone to confirm eligibility, to determine interest in the study and if interested, to schedule a baseline enrollment interview. For families to be eligible, the following criteria were used (i) one family member was insured by KP at the time of the sample draw, (ii) there was a child between the ages of 11–12, (iii) this child had neither a current nor past history of alcohol or other substance use treatment and (iv) the target child and enrolling parent (i.e. mother/female guardian) spoke English, as programs were offered in English. Three-fourths ($n = 2441$, 75.6%) of the families contacted were confirmed as eligible and 964 (39.5%) of the eligible families agreed to participate in the study. About two-thirds ($n = 614$, 63.7%) of those who agreed completed the baseline enrollment interviews. Appointments were established at the clinic for the baseline interviews and no shows were not recontacted because of fiscal constraints.

Comparisons between the assigned and choice participants were as follows. We found no significant differences in enrollment (44.3% choice versus 55.7% assigned, $\chi^2 = 0.27$, $P = 0.60$) or agreeing to participate (43.8% choice versus 56.2% assigned, $\chi^2 = 0.42$, $P = 0.52$) between the choice and assigned conditions. However, we did find differences for participation level, specifically completing more than half of the program (62.2% choice versus 53.5% assigned, $\chi^2 = 7.3$, $P < 0.05$). For this paper, we are focusing only on those enrolled in the choice condition ($N = 270$). These remaining analyses are based upon the 270 families who made a choice.

Procedures

Following consent and assent procedures for mothers and adolescents, separate face-to-face interviews

were conducted with the mothers and adolescents prior to the mothers' choice of program. Mothers rather than both mothers and fathers were interviewed due to financial constraints. However, both mothers and fathers were encouraged to participate in the intervention. Adolescents answered sensitive questions (e.g. self-reported alcohol/drug use) using self-reported Audio Computer-Assisted Self-Interview.

Description of the two programs

The choice of prevention program for addressing adolescent alcohol, tobacco and other drug (ATOD) use was either the SFP: for parents and youth 10–14 [10] or FM [9]. Both programs are universal prevention programs that have been shown to be effective and both target similar risk factors [11–14]. However, the two programs have substantially different formats. SFP involves seven weekly group sessions, delivered at the family's medical facility. SFP sessions are interactive and include separate parent and youth sessions during the first hour. During the second hour, a combined family session is conducted which allows parents and teens to practice together the skills they learned during the first hour.

The FM program, which was developed for use with 12–14 year olds, consists of four booklets that contain information about the prevention of adolescent alcohol and drug use and exercises for parents to implement with their teen. Health educators call parents approximately 1 week after each booklet is received to provide encouragement and answer any questions the parents have.

Prior to implementing the choice condition, program developers/researchers for the two programs were consulted to ensure that choice information provided to the mothers correctly represented each program. Researchers wanted to ensure that there were no embedded messages that would bias the choice and that the type of material and method of presentation were balanced for the two programs.

Mothers were told that there was evidence that both programs reduced adolescent risky behaviors, specifically alcohol and other substance use, and that both had been positively received by families. Choice materials given to mothers also described differences between the two programs, in that SFP

allows the opportunity to interact with other families, while FM is implemented by parents in the home at times convenient for the family.

Measures

Measures are drawn largely from the items used to assess the original studies (the Institute for Social and Behavioral Research (ISBR), Iowa State University, 2000) [15], hereafter referred to as ISBR measures, and from the original FM measures, as cited below. Measures were from ISBR unless otherwise noted. All measures were reported by both mothers and youth unless noted otherwise.

Parenting style

Forty-two items adapted from the Parenting Styles and Dimensions Questionnaire [16] were on a 5-point scale from 'never' to 'most of the time—almost daily', with higher overall scores indicating more of a particular parenting style. Three scales were created by averaging items reflecting the three styles that have been validated by prior studies [16]: authoritarian—12 items reflecting high behavioral expectations and low warmth; authoritative—15 items reflecting high expectations and warmth and permissive parenting—15 items reflecting low expectations and high warmth. Each scale had unique items and each parent got ratings on three separate scales. Cronbach's α for the three scales were respectively 0.81, 0.85 and 0.75 (parent assessment of self). We also assessed youths' report but dropped it due to low alphas.

Communication

Ten items adapted from [17] assessed the frequency of general communication, such as how often mothers talked to their adolescents about a variety of topics (e.g. plans for the day and alcohol use) using a 5-point scale. Cronbach's α 's were 0.79 for mother and 0.86 for youth. Another measure of communication was whether family meetings were held in the past 30 days (1 = Yes and 0 = No), and if so, the number held ('1' to '4 or more').

Monitoring

Two scales were used (i) knowledge of the adolescent's activities and companions while away from

home and (ii) presence or absence of caretakers. The first was a subset of items adapted from the General Child Management Scale [18–20]. Five items regarded their activities when away from home (1 = never to 5 = always). Separate scales were created for parents and youth by averaging the items. Cronbach's α were 0.60 and 0.55, for mother and youth, respectively. The second scale was evaluated with three items adapted from the measures. Mothers reported the frequency of caregiver/adult presence or absence in specific situations, on a 5-point scale (1 = never to 5 = always), which were then averaged to reflect an overall rating of supervision in the adolescent's daily environments (Cronbach's $\alpha = 0.71$).

Maternal Alcohol and other drug use (mothers' report only)

A composite alcohol use score was created by standardizing and then averaging the following for the past 30 days: (i) the number of drinking days, (ii) the mean number of drinks per day, (iii) the mean number of drinks per drinking day and (iv) the number of heavy drinking days (4 or more drinks on 1 day). Maternal drug use assessed the use of any illegal drug within the past 12 months, 1 = Yes and 0 = No. Maternal problem drinking was adapted from the Short Inventory of Problems (SIP-2L) instrument [21] Cronbach's $\alpha = 0.72$. There were no positive responses to the one drug problem question: 'Have you had any family, work or health problems because of your use of drugs during the past 12 months?'

Problem behavior index

An overall problem behavior index for adolescents was created by standardizing (due to different item response scales) and then averaging scores on several indicators of problem behavior, including delinquency, hostility/warmth toward mothers, ATOD use, depression, mother assessment of grades, school bonding and problem behaviors at school ($\alpha = 0.73$).

Delinquency (youth report only)

A subset of items from the National Youth Survey [22] was used that had been adapted for use in other

SFP programs [23]. Responses indicated the number of times they had participated in any of four delinquent behaviors over the past 12 months: beating someone up or physically fighting with them, purposely destroying or damaging property, breaking into a building or throwing objects to hurt or scare people. Consistent with prior use, responses were dichotomized (1 = Yes and 0 = No) and then summed to provide an index of the types of delinquent behaviors engaged in over the past year.

Adolescent hostility and warmth (youth report only)

Five items adapted from the Iowa Youth and Family Rating Scales on Perceptions of Hostility/Warmth [18] and [23] were on a 5-point scale (1 = never to 5 = always), such as how often the youth gets angry at the mother or hits them. Consistent with prior use, items were first dichotomized so that ‘never’ and ‘hardly ever’ were coded as 0, and ‘sometimes’, ‘most of the time’ and ‘always’ were coded as 1. Dichotomized items were then summed to create a scale (Cronbach’s $\alpha = 0.63$).

Adolescent ATOD use (youth report only)

Questions assessed lifetime alcohol and cigarette use (1 = Yes and 0 = No). Using items adapted from the National Household Survey on Drug Abuse [24], adolescents also reported whether they had used any of six illegal drugs (e.g. marijuana, inhalants) in their lifetime (1 = Yes and 0 = No). From these three items, a summary measure was created by counting the types of substances the youth had used. Scores ranged from 0, reflecting no use of any of the substance types (alcohol, tobacco or illegal drugs), to 3 for those who had positive responses to using all three types.

Adolescent depressive symptoms (youth report only)

Items adapted from the Center for Epidemiologic Studies Short Depression Scale (CESD 10) [25] assessed symptoms during the past week, such as

being bothered by things that do not normally bother them. Response choices ranged from ‘1 = rarely or none of the time (less than 1 day)’ to ‘4 = All of the time (5–7 days)’. Items were summed. Cronbach’s $\alpha = 0.80$.

School measures

Mothers reported their adolescent’s typical grades in school, from ‘mostly A’s’ to ‘mostly F’s’ on a 9-point scale adapted from the ISBR measures. Items were reversed prior to analyses so that higher scores indicated better grades. A 24-item scale adapted from the ISBR measures assessed youths’ reports of school bonding over the past school year, such as staying out of trouble at school and finishing homework assignments (1 = never to 5 = always). A composite was created by averaging the items (Cronbach’s $\alpha = 0.88$).

Seven items adapted from the ISBR measures assessed school disruptiveness, including whether mothers had received notification from their adolescent’s school regarding problem behaviors (e.g. skipping class). Mothers could answer from ‘Never’ to ‘More than five times’ on a 5-point scale. The number of times the mothers were contacted for each behavior was averaged (Cronbach’s $\alpha = 0.78$).

Peer deviancy (youth report only)

Five items adapted from the ISBR measures included whether friends were in trouble with the police, sometimes break laws, do not get along with their mothers, don’t like school and if they got bad grades. Youth could respond on a 5-point scale from ‘strongly disagree’ to ‘strongly agree’ (Cronbach’s $\alpha = 0.75$).

Results

Program Chosen

There was a significant difference in the number of mothers who chose one program over another. More than half (57.4%) of the mothers chose FM, as compared with SFP (42.6%) (χ^2 goodness of fit test = 5.93, $P = 0.015$). One percent of the families

dropped from the program participation before making a choice.

Demographic characteristics

Youth were 11.48 years of age on average ($SD = 0.50$). Based on youth reports, 13.7% had ever used alcohol, which is comparable to national rates of 14.4% among 12–13 years olds [26]. Among those who had ever drank, the average number of drinks per drinking day over the past 30 days was 1.0 ($SD = 0$). The average age for mothers was 43.49 ($SD = 7.14$) and over half of the mothers had graduated from college (54.3%). Mothers were allowed to report multiple ethnic identities and half of the women reported white ethnicity (52.6%). Asian ethnicity was the next most frequently mentioned group (19.3%), followed by African American (14.9%) and Hispanic (13.8%). A smaller proportion of families reported ethnic identities as Pacific Islander (1.5%) and American/Alaska Native (3.0%). Three-fourths (77%) of the mothers were married. Half (51.9%) of the youth were female.

Family characteristics revealed that the average number of persons in the household were 4.19 ($SD = 1.24$). Household income was distributed as follows: \$40 000 or less, 8.8%; \$40 001–\$80 000, 30.0%; \$80 001–\$125 000, 28.8%; \$125 001–\$150 000, 12.3%; \$150 001–\$200 000, 11.5%; \$200 001–\$300 000, 5% and more than \$300 001, 3.5%. About one-fifth (22.8%) of the households were single parent households.

Relationships among predictors

Correlations were conducted among predictor variables. Peer deviance was negatively correlated with authoritative parenting style, knowledge of youth whereabouts, yet positively correlated with authoritarian and permissive parenting styles. Youth problem behavior was negatively correlated with communication, family meetings, authoritative parenting style and knowledge of whereabouts and positively correlated with authoritarian and permissive parenting styles. Most of the parenting behaviors related to lower levels of youth and peer

deviance were positively related to each other, while authoritarian and permissive parenting styles were positively correlated with each other. In addition, parent and youth reports of parenting behaviors were generally positively correlated. Details are shown in Table I.

Relationship of parenting behaviors to program chosen

There was relatively little evidence that parenting behaviors were related to program chosen (see Table II). Based upon adolescent reports, no differences in parenting communication, style, monitoring or supervision were reported. Based upon maternal reports, more communication was reported for families who chose SFP. However, based upon maternal reports, there were no differences in parenting style, either monitoring scale or maternal alcohol or drug use related to program chosen.

Relationship between Adolescent Problem Behaviors and Program Chosen

The type of program chosen was related to adolescent behaviors with virtually all adolescent problem behaviors significantly related to the SFP program chosen (see Table III). Significantly higher levels at nearly twice the level of ATOD use was indicated among families where SFP was chosen as compared with FM (0.18 versus 0.35, respectively). Youth whose families chose SFP also had higher usage rates for specific types of substances, although this was only significantly different than FM families for alcohol use (19.1% SFP versus 9.6% FM), but not cigarette or illicit drug use. These rates are similar to national rates, for example, 7.9% of 12- to 13-year olds had ever smoked cigarettes [26]. Significantly higher average levels of delinquency (0.82 versus 0.52) and depression (7.65 versus 6.5) are found in the SFP as compared with the FM groups. Furthermore, mothers who chose SFP had youth with significantly higher overall problem index ($M = 0.15$) as compared with mothers who chose FM ($M = -0.09$). Likewise, for measures of resilience

Table I. Correlations among predictor variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1. Communication—P	1																											
2. Communication—C	0.26***	1																										
3. Number of Family Meetings—P	0.20**	-0.02	1																									
4. Number of family meetings—C	-0.02	0.11	0.06	1																								
5. Any family meetings—P	0.15*	0.02	0.82***	0.10	1																							
6. Any family meetings—C	-0.06	0.11	0.04	0.86***	0.11	1																						
7. Authoritative—P	0.37***	0.14*	0.23***	0.18**	0.19**	0.11	1																					
8. Authoritative—C	0.19**	0.49***	-0.01	0.24***	0.02	0.19**	0.22***	1																				
9. Authoritarian—P	0.07	0.03	-0.03	-0.04	-0.05	-0.01	-0.26***	-0.18**	1																			
10. Authoritarian—C	0.04	0.00	0.00	-0.15*	0.04	-0.13*	-0.14*	-0.24***	0.30***	1																		
11. Permissive—P	-0.09	-0.05	-0.18**	-0.04	-0.10	-0.03	-0.38***	-0.12	0.45***	0.12*	1																	
12. Permissive—C	-0.02	-0.11	-0.01	-0.17**	0.01	-0.12	-0.03	-0.26***	0.13*	0.39***	0.30***	1																
13. Knowledge—P	0.23***	0.10	0.10	0.09	0.05	0.02	0.16**	0.13*	-0.09	0.02	-0.16**	-0.15*	1															
14. Knowledge—C	0.11	0.34***	0.00	0.11	0.02	0.08	0.08	0.51***	-0.11	-0.29***	-0.12	-0.33***	0.18**	1														
15. Caregiver present	-0.04	0.07	0.07	0.04	0.08	0.01	-0.01	0.06	-0.11	-0.07	-0.05	-0.03	0.20**	0.15*	1													
16. Parent alcohol use	-0.05	-0.03	0.06	0.20**	0.10	0.20**	-0.02	0.02	0.07	-0.02	0.04	0.00	-0.16*	-0.04	-0.05	1												
17. Parent alcohol problems	0.09	-0.01	0.00	-0.04	-0.01	-0.04	0.06	0.05	0.01	-0.02	0.05	-0.03	-0.07	-0.04	0.02	0.27***	1											
18. Parent drug use	-0.02	-0.10	-0.06	0.08	-0.02	0.13*	-0.07	-0.05	0.15*	-0.01	0.11	0.04	-0.15*	-0.06	-0.04	0.07	0.15*	1										
19. Peer deviance	0.11	-0.09	0.08	-0.07	0.11	-0.07	-0.03	-0.28***	0.10	0.22**	0.13*	0.13*	-0.13*	-0.42***	0.02	-0.01	0.09	0.12	1									
20. Problem behavior index	0.08	-0.17**	0.07	-0.17**	0.08	-0.17**	0.00	-0.41***	0.18**	0.47***	0.15*	0.34***	-0.13*	-0.51***	-0.11	0.00	0.08	0.08	0.52***	1								
21. Parent age	-0.20**	-0.15*	0.03	0.06	0.01	0.12		0.13*	-0.04	-0.12*	-0.11	0.02	0.09	-0.19**	-0.09	0.04	0.11	0.00	0.04	0.00	-0.04	1						
22. Parent education	-0.25***	-0.11	-0.02	0.13*	-0.03	0.17**	0.04	0.00	-0.08	-0.07	-0.04	0.07	-0.23***	-0.14*	-0.05	.14*	0.04	-0.03	-0.09	-0.07	0.32***	1						
23. Parent employment	-0.06	-0.09	-0.04	-0.07	-0.04	-0.06	-0.07	-0.13*	0.00	0.12	0.06	0.16*	-0.01	-0.10	-0.18**	-0.12	-0.15*	0.00	-0.01	0.06	-0.02	0.051	1					
24. Family income	-0.17**	-0.04	-0.04	0.10	-0.03	0.15*	0.09	0.02	-0.05	-0.08	-0.09	-0.10	-0.09	0.08	0.02	0.32***	0.01	-0.02	-0.22***	-0.25***	0.18**	0.32***	-0.15*1	1				
25. White	-0.04	-0.06	0.00	0.11	0.02	0.13*	0.11	0.08	-0.19**	-0.14*	-0.01	0.05	-0.08	0.10	0.06	0.30***	0.12	0.15*	-0.11	-0.11	0.32***	0.12*	-0.11	0.26***	1			
26. Married	-0.16*	-0.04	-0.05	0.04	-0.03	0.03	-0.05	-0.07	-0.13*	-0.16**	-0.06	-0.10	-0.03	0.09	0.09	0.13*	0.03	-0.04	-0.21**	-0.20**	-0.02	0.17**	-0.08	0.44***	0.21**1	1		
27. Youth gender	0.02	-0.13*	0.13*	0.15*	0.20**	0.14*	-0.04	-0.08	0.06	0.04	-0.05	-0.04	0.01	-0.11	-0.10	0.15*	-0.02	0.13*	0.10	0.11	-0.11	0.04	0.00	0.06	-0.04	0.04	1	
28. Number in House	0.03	0.02	-0.16**	-0.14*	-0.16*	-0.13*	-0.08	-0.12*	0.08	0.00	-0.04	-0.13*	0.04	-0.01	-0.07	0.01	-0.03	-0.01	-0.01	-0.05	-0.26***	-0.09	-0.06	0.19**	-0.11	0.37***	0.06	1

P = parent report and C = youth report.
P* < 0.05, *P* < 0.01, ****P* < 0.001.

Table II. Relationship of maternal behaviors to program chosen: mother and adolescent reports

Variables	FM (<i>n</i> = 155)	SFP (<i>n</i> = 115)	<i>t</i> -test, χ^2
Mother			
Mother communication \bar{x} (SD)			
Adolescent	3.57 (0.711)	3.66 (0.886)	NS
Mother	3.63 (0.547)	3.80 (0.520)	<i>t</i> = -2.457**
Family meetings (past 30 days)			
Any Family Meetings (%)			
Adolescent	46.4	38.6	NS
Mother	61.0	73.0	χ^2 = 4.238**
Number of meetings \bar{x} (SD)			
Adolescent	1.19 (1.512)	0.98 (1.451)	NS
Mother	1.68 (1.665)	2.30 (1.717)	<i>t</i> = -2.958***
Parenting style			
Authoritative \bar{x} (SD)			
Adolescent	4.05 (0.595)	4.01 (0.712)	<i>t</i> = 0.413
Mother	4.36 (0.412)	4.39 (0.460)	<i>t</i> = -0.650
Authoritarian \bar{x} (SD)			
Adolescent	2.15 (0.635)	2.28 (0.761)	<i>t</i> = -1.520
Mother	2.07 (0.529)	2.18 (0.524)	<i>t</i> = -1.651
Permissive \bar{x} (SD)			
Adolescent	2.03 (0.406)	1.94 (0.417)	<i>t</i> = 1.742*
Mother	2.18 (0.469)	2.12 (0.462)	<i>t</i> = 1.016
Monitoring			
Knowledge \bar{x} (SD)			
Adolescent	4.35 (0.492)	4.38 (0.483)	<i>t</i> = -0.485
Mother	4.47 (0.385)	4.49 (0.370)	<i>t</i> = -0.235
Caregiver presence \bar{x} (SD)	4.32 (0.819)	4.37 (0.838)	<i>t</i> = -0.492
Maternal AOD use (mother only)			
Current alcohol use	1.84 (2.132)	1.95 (2.501)	<i>t</i> = -0.374
Alcohol problems (SIP) \bar{x} (SD)	0.22 (0.815)	0.28 (0.862)	<i>t</i> = -0.510
Drug use (past 12 months) (%)	5.3	4.4	χ^2 = 0.116

P* < 0.1, *P* < 0.05, *** *P* < 0.01.

(school bonding), mothers who chose SFP had adolescents who had significantly lower levels of school bonding as compared with the FM adolescents.

Relationship of demographics to program choice

Socioeconomic indicators suggest that mothers who were more educated were more likely to choose FM (see Table IV). Among those who chose FM, 61.6% of mothers had graduated from college, whereas only 44.7% of mothers choosing SFP had. Families in the lowest income bracket (\$40 000 or less) were about 5 times more likely to choose SFP

over FM. Neither ethnicity nor marital status significantly affected choice of program.

Multivariate analyses of mother and adolescent characteristics influencing program choice

To determine the relative strength of the relationships for maternal and youth behavioral characteristics on program chosen, logistic regression analyses were conducted. The indicated dependent variable was SFP as program choice and FM as the program choice was the contrast. The independent variables reflecting demographics, parenting and adolescent behaviors, which were significant or

Table III. Relationship of adolescent behaviors to program chosen

Variables	FM (<i>n</i> = 155)	SFP (<i>n</i> = 115)	Test statistic
Overall problem behavior index	−0.09 (0.604)	0.15 (0.636)	<i>t</i> = −3.1965***
Lifetime alcohol use	9.6%	19.1%	$\chi^2 = 4.80^{**}$
Lifetime cigarette use	2.0%	5.4%	NS
Lifetime drug use	7.1%	11.0%	NS
ATOD use	0.18 (0.475)	0.35 (0.691)	<i>t</i> = −2.233**
Delinquency \bar{x} (SD)	0.52 (0.904)	0.82 (1.088)	<i>t</i> = −2.439**
School disruptiveness	1.50 (0.613)	1.66 (0.682)	<i>t</i> = −1.903*
Depression \bar{x} (SD)	6.50 (3.598)	7.65 (4.342)	<i>t</i> = −2.355**
School bonding \bar{x} (SD)	4.02 (0.477)	3.89 (0.493)	<i>t</i> = 2.170**
Grades \bar{x} (SD)	7.61 (1.455)	7.30 (1.543)	NS
Youth hostility \bar{x} (SD)	1.22 (1.238)	1.44 (1.346)	NS
Peer deviancy \bar{x} (SD)	1.70 (0.612)	1.92 (0.761)	<i>t</i> = −2.496**

P* < 0.1, *P* < 0.05, ****P* < 0.01.

trending toward significance at the bivariate level, were entered into the equation. As shown in Table V, the results indicate that mothers were more likely to choose SFP if they reported a greater number of family meetings and their adolescent had more problem behaviors. Mothers were more likely to choose FM if they had graduated from college.

Discussion

These findings increase our knowledge about how parent and teen characteristics may be related to parental choices regarding appropriate programs for alcohol–drug prevention. Our findings suggest that parents who have teens with more behavioral health problems are more likely to select the SFP program that offers a group-led, ‘in-person expert’ guided approach. This program also required that parents engage in a program that was conducted away from home, had a set schedule for the intervention time and that they interact with other families.

In contrast, personal characteristics of the parent were related to the choice of FM as the prevention program for their adolescent. Specifically, parents who chose FM were more likely to have higher levels of education. This program required that the parents read materials on their own and then proceed with delivering the intervention to their adolescents. Parents who are more educated may be more com-

fortable with this approach. Further, parents who chose FM had lower levels of adolescent problem behaviors and may not have felt the need for the extra structure provided by the SFP program.

In the bivariate analyses, we also found that parents who chose SFP had higher levels of communication with their youth. This finding may reflect parents’ better overall relationship with their youth. Parents who feel more confident of their relationship with their teen may be more willing to choose a program (SFP) that exposes their relationship to a face-to-face peer group of other parents. However, this relationship disappeared in the multivariate analyses, suggesting that the relationship between family communication and program choice is complex.

Given that SFP required that families attend classes at a specified time and place that was pre-established, the demands of the program were greater and less flexible than the FM program that could be implemented in the home at the convenience of the family. Our findings suggest that mothers with adolescents who exhibited problem behaviors may have perceived more value in attaining outside assistance (e.g. group leaders with expertise, other parents). FM did have resources available to parents through the telephone contact calls but this may have been less salient to mothers whose adolescents were exhibiting problems.

Table IV. Relationship of maternal, adolescent and family characteristics to program chosen

Variables	Total ^a , 100% (n = 272)	FM, 57% (n = 155)	SFP, 42% (n = 115)	Statistics
Mother				
Average age \bar{x} (SD)	43.31 (6.606)	43.51 (5.700)	42.97 (7.747)	$t = 0.596$
Graduated from college (%)	54.3	61.6	44.7	$\chi^2 = 7.436^{***}$
Employed (%)	84.5	88.1	79.8	$\chi^2 = 3.385^*$
Ethnicity (%)				
White	52.6	52.3	53.0	$\chi^2 = 0.015$
African American	14.8	15.7	13.9	$\chi^2 = 0.163$
Asian	19.2	22.7	14.8	$\chi^2 = 2.665$
Hispanic	14.1	12.4	15.7	$\chi^2 = 0.577$
Pacific Islander	1.5	0.6	2.6	$\chi^2 = 1.725$
American/Alaska Native	3.0	2.6	3.5	$\chi^2 = 0.177$
Refused/Do not know/ Other	17.0	14.3	20.0	$\chi^2 = 1.543$
Marital Status (%)				
Married	77.0	79.9	73.7	$\chi^2 = 1.426$
Adolescent				
Gender (%)				
Female	51.1	55.5	46.1	$\chi^2 = 2.334$
Family				
Average number in household \bar{x} (SD)	4.18 (1.239)	4.21 (1.192)	4.17 (1.297)	$t = 0.279$
Average household income (%)				
40 000 or less	9.2	3.4	16.1	$\chi^2 = 12.738^{****}$
40 001–80 000	30.2	34.5	24.1	$\chi^2 = 3.254^*$
80 001–125 000	28.6	30.4	26.8	$\chi^2 = 0.407$
125 001–150 000	12.2	9.5	16.1	$\chi^2 = 2.582$
150 001–200 000	11.5	13.5	8.9	$\chi^2 = 1.313$
200 001–300 000	5.0	5.4	4.5	$\chi^2 = 0.119$
More than 300 001	3.4	3.4	5.0	$\chi^2 = 0.007$
Single parent (%)	18.8	16.9	20.9	$\chi^2 = 0.691$

^a1% failed to make a choice.

* $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$, **** $P < 0.001$.

Findings are consistent with prior studies. For example, parents who believe their child is more vulnerable to problem behaviors are more likely to participate in family-based prevention programs [8, 27–29]. Furthermore, parents who perceive greater teen problems were more likely to perceive benefits of the SFP program and in turn, to want to enroll in the program [28]. The ability to make a choice (as compared with being assigned) to family-based programs may also be important to outcomes and will be considered in future work from this project, as the larger study had a choice versus no-choice design.

The information provided to mothers regarding the programs was limited. A more extensive presentation of the programs and their potential influences on youth behavior might alter the program selected. This study does not investigate the decision-making (i.e. why the decision was made) because our emphasis was on whether the actual choice makes a difference and asking parents to reflect upon their choice may have been tantamount to an intervention. Future work needs to be directed at examining the underlying dynamics that guide this process. Furthermore, data was not collected from fathers and other parental figures. Prior studies show evidence

Table V. Multivariate logistic regression of relationships of demographics, family characteristics, adolescent and maternal behaviors to program chosen

	Chose SFP program	
	Exp (B)	95% CI
Controls		
Mother		
Graduated from College	0.78*	0.61–1.00
Employment	0.58	0.27–1.23
Income	1.05	0.86–1.28
Predictors		
Mother		
Maternal communication	1.28	0.75–2.19
Any family meetings	0.57	0.21–1.54
Number of family meetings	1.37**	1.04–1.80
Adolescent		
Peer deviancy	1.14	0.71–1.83
Overall problem behavior index	1.68**	1.00–2.82

* $P < 0.10$, ** $P \leq 0.05$.

that the gender of parent is important and deserves further exploration [30, 31]. Selecting our sample from a medically insured population limits the proportion of poor and non-working families, even though Kaiser does offer programs for low-income families. Our recruitment rate was lower than desired but similar to other recruitment rates of other family-based programs, such as that reported by [32] for a universal family program (31%) and [33] for a parent program (38%), as engagement of families in family-based prevention programs is recognized as a significant challenge [32, 34, 35]. Our efforts may have been further influenced by the requirement that families needed to complete the baseline interview in person, at one of the medical facilities. Given the Bay Area traffic congestion, this requirement may have limited ability for families to follow through with their intentions to participate. Transportation difficulties may have further contributed to a tendency to choose the FM program that required no specific time commitments or travel plans. Our sample was ethnically more diverse but also over-represented higher in-

come and married families, as compared with the general population in the United States. We controlled for income in our analyses and it had no impact.

Some of our measures (e.g. monitoring/hostility-warmth) revealed lower alphas in this study than expected and therefore may indicate less than ideal test of these domains. This may impact the findings by weakening observed effects. Further, our delinquency index only measures more serious forms of delinquency, and results may be different if we had included measures of less severe delinquency.

In our prior work, we examined the impact of choice versus no choice (RCT condition) on participation and engagement. We found that having a choice was related to significantly improved parenting outcomes and program engagement (program satisfaction) [H.F. Byrners and B.A. Millier unpublished results]. For FM, having a choice was related to completing the program in a shorter period and spending more time implementing activities [36].

Based upon our findings in these analyses, three points seem most important for emphasis. First, although the scientific community has striven to develop a universal family-based approach that could be useful to all families, parents differ in their choice of programs. These findings suggest that program choices are related more to the child rather than the parent characteristics. This suggests that parental awareness may be driving the decisions made regarding their involvement in programs and that we could do better to address these parental concerns in engaging parents in the prevention programming. Yet, the seemingly low rates of parental engagement have resulted in reliance on school-based approaches. Perhaps, further study of engagement issues would encourage the use of multiple approaches (schools, peers, families, community policies) rather than singular emphases on one approach. Second, just as treatment interventions have moved toward tailoring to clientele, the same tailoring of interventions for prevention are needed. To date, much of this ‘tailoring’ has occurred on the cost effectiveness of what can be delivered in

a given community rather than in the true sense of the meaning of tailoring interventions to meet the characteristics of the participants.

Finally, the importance of engaging parents, other parental figures and extended family members in reducing the vulnerability of adolescents for early use of alcohol is evident with findings that indicate that the longer young people delay the initiation of use, the better their odds for avoiding alcohol-related problems later in life [37–39]. Engaging parents is a strategy for increasing the resources for addressing and preventing adolescent behavioral problems like alcohol and drug use. In most families, the infrastructure of the family system provides accessible social resources in the community to maintain healthy and functioning youth. In these times of limited resources, providing families with knowledge and workable strategies for making a difference is needed. This may be especially important for higher income families where alcohol is more readily available in homes.

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Conflict of interest statement

None declared.

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