Pathways family intervention for third-grade American Indian children[1–3]

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ABSTRACT The goal of the feasibility phase of the Pathways family intervention was to work with families of third-grade American Indian children to reinforce health behaviors being promoted by the curriculum, food service, and physical activity components of this school-based obesity prevention intervention. Family behaviors regarding food choices and physical activity were identified and ranked according to priority by using formative assessment and a literature review of school-based programs that included a family component. The family intervention involved 3 primary strategies designed to create an informed home environment supportive of behavioral change: *1*) giving the children "family packs" containing worksheets, interactive assignments, healthful snacks, and low-fat tips and recipes to take home to share with their families; *2*) implementing family events at the school to provide a fun atmosphere in which health education concepts could be introduced and reinforced; and *3*) forming school-based family advisory councils composed of family members and community volunteers who provided feedback on Pathways strategies, helped negotiate barriers, and explored ideas for continued family participation. For strategy 2, a kick-off Family Fun Night provided a series of learning booths that presented the healthful behaviors taught by Pathways. At an end-of-year Family Celebration, a healthy meal was served, students demonstrated newly learned Pathways activities, and certificates were presented in recognition of completion of the Pathways curriculum. Based on evaluation forms and attendance rosters, strategies 1 and 2 were more easily implemented and better received than strategy 3. Implications for developing family involvement strategies for intervention programs are discussed. *Am J Clin Nutr* 1999;69(suppl):803S–9S.

KEY WORDS Family, children, parents, health promotion, health education, nutrition intervention, obesity prevention, American Indians, low-fat diet, physical activity, exercise, health attitudes, health behaviors

INTRODUCTION

As discussed elsewhere in this supplement, American Indians have a high prevalence of obesity in all age groups and both sexes (1, 2). The epidemic of obesity among American Indians is a relatively recent phenomenon that has occurred during the past 50 y (1, 2). This secular trend of increasing obesity in American Indian children (3) and adults (4) has also been reported for white, black, and Hispanic children and adults in the United States (5, 6).

Schools provide an excellent forum for prevention efforts, because of their potential to reach large numbers of children and to deliver structured risk-reduction programs. One school-based primary prevention intervention that focused on reducing cardiovascular risk factors was successful in changing the physical activity and eating behaviors of children (7, 8). Health intervention projects with American Indian populations are less well documented. A few localized studies that worked within a culturally relevant context with American Indian schoolchildren successfully increased health knowledge and promoted modifications of food choices and physical activity (9, 10). Parcel et al (11) reviewed school-based programs designed to reduce or treat obesity and found 3 key factors associated with program success: *1*) combining nutrition education, behavior management, and physical activity; *2*) targeting elementary schoolchildren rather than adolescent or college-age youth; and *3*) including parental involvement, particularly by helping parents modify the behavior of their children. There is strong evidence from obesity treatment programs targeting children, irrespective of the setting, that involvement of parents and other family members as active participants in the intervention is a crucial determinant of success in the long-term maintenance of weight loss and weight control (11–14).

Pathways is a school-based primary prevention intervention that promotes healthful eating and increased physical activity to prevent obesity in American Indian children. The purpose of this

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paper is to describe the results of the feasibility and pilot testing of the family component of the Pathways third-grade intervention. The goals of this Pathways component are to: *1*) build a partnership between Pathways and families; *2*) assist families in reinforcing health behaviors promoted by the curriculum, food service, and physical activity school components; *3*) inform families of the Pathways mission, objectives, and activities; and *4*) provide a forum through which families can ask questions, express their concerns, and support Pathways.

The rationale for involving families in childhood obesity interventions has its foundations in clinical weight-loss studies with children (13, 14), school-based obesity interventions (11, 12), and school-based cardiovascular risk reduction interventions (7, 8). Research in each of these areas has confirmed the importance of family involvement in changing the health behaviors of children. Effective programs have used a cognitive-behavioral approach for reducing risk factors and have created an environment favorable to enabling and reinforcing behavior change. These studies provide a theoretical framework for childhood obesity interventions.

Parents and other family members provide the primary social learning environment in which attitudes and behaviors regarding eating and physical activity are formed (15, 16). The family has a powerful influence over the shaping and maintaining of children's eating and exercise habits. The strong influence of the relationship between the parent or caregiver and child, including modeling of health behaviors, creating an environment conducive to active or sedentary lifestyles, choosing and preparing food, and encouraging and reinforcing eating and physical activity patterns, suggests that parents and caregivers must be involved in interventions designed to increase healthy eating and physical activity in childhood. Epstein and Wing (14) cited 3 reasons for parental and familial involvement in obesity interventions: *1*) because obesity runs in families, it may be unrealistic to intervene with one family member while other family members are modeling and supporting behaviors that may counteract the intervention's effectiveness; *2*) specific parental behaviors that facilitate overeating and inactivity are important in the development of unhealthy behaviors; *3*) to achieve maximal behavior change in children, use of specific behavior-change strategies (such as positive reinforcement) by parents may be warranted.

Epidemiologic research suggests that parental obesity is a risk factor for the development of obesity in children (17, 18). Families may share an environment that is conducive to overeating, consuming a high-fat diet, or following a sedentary lifestyle (13, 19–22). Klesges et al (23) found significant correlations between a child's relative weight and parental offers of food and encouragement to eat. The level of parental physical activity influences the amount of exercise in which children engage, and parental obesity is associated with decreased physical activity in children (24).

Limited information suggests that behaviors conducive to familial and childhood obesity may be present in American Indian populations (25). In addition, the social and economic change experienced by many American Indians since the 1950s may have contributed to the development of obesity. Over the past 50 y, the rapidly increasing availability of energy-dense foods and energy-saving conveniences has led to energy imbalance, with more energy consumed than expended (26). With lifestyle changes such as these, the risk of childhood obesity increases unless parents control access to high-fat, high-energy foods and encourage physical activity. Cultural attitudes regarding appropriate body shape may add a degree of complexity to the understanding of obesity. In American Indian populations, thinness may be more strongly associated with poor health and more actively avoided than in economically advantaged populations (27, 28). Cultural attitudes and practices in American Indian populations might be slanted toward behaviors that assure adequate weight, whereas behaviors favoring weight loss might be less well established (29).

A number of studies have shown that weight management programs involving both children and their parents result in lower body weights and less obesity at 5-y and 10-y follow-ups (13, 14, 30, 31). Parental involvement in weight control for children facilitates changes in the eating and exercise environment by providing a role model and social reinforcement for behavioral change. Correlational analyses at 10-y follow-up suggested that support for behavior change from family and friends is related to long-term outcomes (31).

In school-based efforts, there are challenges involved in recruiting and sustaining parental involvement (15, 30). In a family-based cardiovascular risk reduction education program, Mexican American and non-Hispanic white families attended weekly group meetings for 3 mo followed by booster sessions for 9 mo (32). This intensive approach resulted in physiologic and behavioral changes that were maintained 4 y after completion of the intervention. However, only about one-fourth of eligible families participated. By using a less intensive, home-based, correspondence-course format related to the classroom curriculum, Perry et al (33) achieved a high participation rate (70%) among parents of third-grade children; this program used a comic book format and offered a grand prize for participation. At post-intervention evaluation, children in the home-based program had reduced their total dietary fat and saturated fat consumption and had increased their complex carbohydrate consumption; however, these dietary changes attenuated after 1 y. The Child and Adolescent Trial for Cardiovascular Health (CATCH) also used a home-based curriculum with skill-building activity packets that students took home to complete with their parents (8). These activities related to the school curriculum, which focused on increasing healthful eating and physical activity. CATCH implemented Family Fun Nights that provided information, games, and heart-healthy food for children and parents, with moderate attendance rates (45–65%) among parents (8). In comparison to the school-only intervention, inclusion of the family component did not significantly improve any of the physiologic measures or behaviors other than dietary knowledge in the children. Nader et al (34) further examined the effect of the dose of the family intervention (the degree of adult participation) on knowledge, attitudes, self-reported behaviors, and physiologic outcomes of children participating in the CATCH program. Significant dose effects were found for knowledge and attitudes related to diet and physical activity. The effects were more pronounced for minority and male students. The results of these school-based studies reinforced the need for family involvement in the design of the Pathways intervention, which sought to provide multiple opportunities for involvement, including home-based curricula and family events.

SUBJECTS AND METHODS

This feasibility phase of Pathways was implemented in the 1995–1996 academic school year. Participants in the data collection for the family intervention included 194 third-grade children

from 4 schools and their families living within distinct American Indian nations or tribes: the Navajo Nation in northwest New Mexico; the White Mountain Apache Tribe in west central Arizona; the Lakota in southwest South Dakota; and the Tohono O'Odham Nation in south central Arizona.

Pathways was designed to recognize the variation inherent in the individual and cultural interpretations of the term *family*, and the importance of the extended family in American Indian cultures. The Pathways family component reflected this diversity by recognizing a range of potential participants, from single primary caregivers to several relatives living within close proximity. Family intervention messages were primarily targeted to adult caregivers.

Formative assessment

A comprehensive needs assessment addressing the 4 intervention components (classroom curriculum, food service, physical activity, and family) was completed in the spring of 1995 (35). Information about family activities related to food behaviors and physical activity was collected through focus groups with parents and in-depth follow-up interviews with subsamples of these parents. A minimum of 4 focus groups and 10 in-depth interviews were conducted in each of the 4 communities. The interviewers included both native members of the respective communities and nonnatives who were members of the Pathways staff trained in focus group and interview techniques before data collection. Teachers and key community members provided additional information based on their experience with the families' interactions with the school administration and planned school events.

Risk behaviors in the home that were addressed specifically by the family component included: children eating high-fat foods at meals and drinking a lot of high-sugar drinks and whole milk, lack of family role models for physical activity, and lack of encouragement to engage in physical activity.

Family-based intervention strategies and process measures

To address family-related high-risk behaviors identified during the formative assessment, 3 primary strategies were developed: family packs, family events, and school-based family advisory councils (SBFACs). The conceptual model guiding development of the intervention strategies was derived from social learning theory and targeted changes in specific environmental, personality, and behavioral factors likely to influence eating and physical activity patterns (36, 37).

Family packs

Family packs consisted of take-home materials that accompanied the curriculum lessons taught over a 12-wk period (6 wk of Pathways implementation within each semester). Two types of family packs were developed: action packs and snack packs. The action packs consisted of a written description of eating and physical activities that family members might enjoy together, such as making a cereal-based trail mix or taking a walk. Snack packs consisted of locally available, low-fat, low-sugar food items for the third-grade child to share the family, such as carrots with fat-free salad dressing, pretzels, or sugar-free powdered drink mix.

Family packs were designed in coordination with other intervention components. Each family pack included the story of the Pathways program and an educational tip sheet developed with the curriculum development group (38) that conveyed the health messages taught in the curriculum. Snack packs were created with the curriculum development and food service groups to ensure that snacks were consistent with eating behavior goals; the foods chosen were inexpensive and locally available. Action packs were planned to reinforce the goals of the physical activity and curriculum intervention components, focusing on fun activities at moderate exertion levels (38, 39).

Return cards included in each family pack were used to evaluate the participation rate and level of interest in the intervention. An adult family member was asked to complete and sign the return cards, which the third-grade child returned to his or her teacher. Children who returned 4 of the possible 6 cards each semester received a small incentive such as novelty shoelaces or a Pathways key chain. The return card for week 12 included an evaluation form that asked families to report their overall impressions of the family packs.

Family events

Two family events were developed in conjunction with the curriculum, food service, and physical activity components as part of the third-grade intervention. The Family Fun Night (FFN) was an educational fair for third-grade children, their entire families, school administrators, teachers, and tribal administrators. This event was described in the fliers sent home in the first week with the family packs. It was the Pathways kick-off event and an opportunity to meet the Pathways staff and learn about some of the behaviors advocated by the intervention. As a kick-off event, the FFN in each community was held in the fall, shortly after the Pathways curriculum was initiated. FFN participation required families to return to school after the children had already gone home. Many families lived >25 miles from the school and transportation was not provided.

FFN activities included: *1*) interactive booths such as taste-testing to compare low- and high-fat varieties of food items (such as milk, cheese, and bologna) as well as sugar-free and high-sugar soft drinks (such as soda pop and powdered drink mix), fishing for fruit in a barrel of water, healthy-foods–physical activity bingo in which game squares included words such as *apples*, *broccoli*, and *jumping jacks*; *2*) physical activities such as country line dancing and relay races in which carrots were traded off between runners; and *3*) distribution of printed health education materials. Families were also served a low-fat meal that included some traditional American Indian foods.

FFN registration rosters were used to record the number of family members attending the event and their relationships to the third-grade children. Registration cards distributed to all attendees at the time of registration were used to assess the level of participation in the individual activities and to record participants' written comments. Each registration card had a square signifying each FFN activity, and attendees carried the registration cards with them throughout the evening. Upon completion of an activity such as taste testing or a game of bingo, each attendee received a stamp or sticker on his or her registration card in the square signifying that activity. Registration cards with ≥6 of the possible 8 stickers or stamps were then turned in to a central location and were included in drawings for door prizes (bikes, tickets to local sporting events, plastic recreation hoops, utility balls, and flying recreation discs.)

The second family event, the Family Celebration, took place in the morning on a school day. This event was designed to give children an opportunity to share some of the games and knowledge learned through Pathways with their families. Students chose 2 Pathways games to demonstrate and teach to their family members.

TABLE 1
Percentage and number of family-pack cards returned to schools by intervention school[1]

	Navajo (n = 116)[2]	White Mountain Apache (n = 34)	Lakota (n = 23)	Tohono O'Odham (n = 21)
		%		
Fall, 1995				
Week 1	78 [90]	91 [31]	91 [21]	100 [21]
Week 2	84 [97]	88 [30]	83 [19]	76 [16]
Week 3	81 [94]	91 [31]	74 [17]	71 [15]
Week 4	73 [85]	82 [28]	43 [10]	62 [13]
Week 5	68 [79]	82 [28]	61 [14]	38 [8]
Spring, 1996				
Week 7	85 [99]	47 [16]	96 [22]	86 [18]
Week 8	80 [93]	47 [16]	91 [21]	71 [15]
Week 9	79 [92]	44 [15]	91 [21]	81 [17]
Week 10	76 [88]	44 [15]	70 [16]	62 [13]
Week 11	66 [77]	38 [13]	78 [18]	71 [15]
Week 12	55 [64]	62 [21]	74 [17]	81 [17]

[1] Percentage calculated as number of cards returned divided by Pathways third-grade students × 100; n in brackets.
[2] Number of Pathways third-grade students/intervention school.

Many of the completed Pathways lesson materials were displayed in the classroom for families to view during the celebration. Families were served a low-fat breakfast snack and were awarded a Pathways certificate of completion recognizing their participation in their child's Pathways experience throughout the year.

Evaluation forms were distributed to family members at the end of the Family Celebration so that they could record their level of enjoyment and general impression of the event.

School-based family advisory councils

SBFACs were designed as a forum for families and other community members to provide feedback on intervention strategies and to encourage ownership and sustainability of Pathways. Parent-teacher associations (PTAs) and parent-teacher organizations (PTOs) were proposed as an appropriate avenue for reaching family members and building from an existing organization. At one school that did not have an active PTA or PTO, a special evening meeting was arranged to recruit participants into the SBFAC.

The initial SBFAC meeting included a slide presentation describing the objectives and components of Pathways, a question-and-answer period, and an opportunity to sign up to be notified of future meetings. For each successive SBFAC meeting, 8–10 questions were developed and posed to family and community members to ask whether they were aware of the Pathways-initiated changes in the third-grade classroom, physical education, recess activities, and the school meals. Support for and objections to the interventions were solicited, and ideas for new intervention strategies were recorded.

The activities and evaluations of the SBFACs were recorded by using a participant sign-in form, meeting minutes, and a group consensus on the 3 most important topics discussed during each meeting.

RESULTS

All 194 third-grade children exposed to the Pathways feasibility study participated in some aspect of the Pathways family intervention. The distribution of students representing the 4 intervention schools was as follows: 116 (60%) Navajo; 34 (18%) White Mountain Apache; 23 (12%) Lakota; and 21 (11%) Tohono O'Odham. Girls and boys were equally represented. Across all intervention schools, ≈70% of adults who participated in the intervention activities were parents, 20% were grandparents, and another 10% were other adult relatives such as aunts or uncles.

Family packs

Across all intervention schools, the rate at which family pack return cards were brought back to the classroom teacher ranged from 38% to 100% (number of cards returned divided by Pathways third-grade students × 100). The average rate for all 12 wk was 65%, and over the 12-wk period the rate of card return fluctuated. The average rate of card return was highest in week 1 (90%) and lowest in week 5 before the semester break (62%). After the semester break in week 6, the average rate of card return rose to 78%; by week 11, the rate had dropped to 63%. In week 12, when a family pack evaluation form accompanied the return card, the return rate was 68%. The return rate of family-pack cards was not significantly different among intervention schools (**Table 1**).

For all 4 intervention schools, the Family Pack evaluation forms indicated overwhelming support and enthusiasm for the materials and activities. Family members completing the evaluation forms were asked to use a 5-level Likert scale (40) to indicate level of agreement with a statement that they enjoyed specific family pack activities. Across all intervention schools, average ratings were between "strongly agree" and "agree." Family members were invited to provide written comments at the end of the evaluation forms. Comments ranged from general to specific and all were positive, for example: "We really liked them so keep it up. Thank you, "My son realized how important it is to eat healthy food and do exercise and not sit around—he's aware of the foods he eats," and "It was a good learning program about eating the proper foods and about Native American culture."

Family events

At all intervention schools attendance was high for the FFN, as shown in **Table 2**. The attendance data, based on returned FFN registration cards, indicate the number of children and adults who attended. At some intervention schools the total number of children exceeded the number of third-grade students because the

total number of attending children included Pathways participants and their siblings, other relatives, and family friends < 18 y of age. At all intervention schools the number of children exceeded the number of adults. Relationships of the adults to the Pathways third-grade students usually could not be discerned from the registration roster. Although this information was requested, it was rarely completed. The ratio of total attendees to Pathways third-grade students at each intervention school was as follows: Navajo, 1.5; White Mountain Apache, 2.3; Lakota, 5.3; and Tohono O'Odham, 2.3. This ratio was not significantly different by intervention school ($\chi^2 = 2.31$; $P = 0.55$).

The participation rate for each of the FFN booths and activities, as recorded by the stickers and stamps collected on the registration cards, varied by intervention school. Booth participant counts were not recorded at the Lakota school. No single booth or activity had the highest participation rate across all intervention schools. When participation data from the 3 intervention schools that maintained booth attendance counts were combined, the 5 booths with the highest attendance were: fishing for fruit; carrot relay race; line dancing; blinded diet and regular pop taste test; and blinded no-fat, low-fat, and high-fat milk taste test.

Comments written on the response cards were brief and positive, such as "Great," "Lots of fun," and "I really enjoyed the taste testing." The brevity or absence of written comments may have been an outcome of the door prize qualification procedures. FFN registration cards with 6 stickers or stamps qualified for the door prize drawings, which occurred throughout the evening. Attendees who wanted to qualify for these drawings quickly turned in their cards once the required number of stickers or stamps was acquired, and thus they often did not take the time to complete the written comments section of the card.

Comments recorded on the booth evaluation forms completed by volunteers and Pathways staff generally reported that participants enjoyed booth activities, but indicated that simplifying procedures would have facilitated implementation. For example, 3–4 types of milk with differing fat content were used in the blinded taste test. Taste testing took ≥5 min, during which lines of potential participants formed and some participants became bored. At several intervention schools, staff members suggested reducing the number of choices to facilitate taste testing of not only milk but also soda pop, cheese, and bologna.

The Family Celebration was well attended at all intervention schools (Table 2). The relationships of the attending adults to the Pathways third-grade students could be discerned from the Family Celebration sign-in rosters. As shown in **Table 3**, mothers accounted for the largest percentage of total attendees, an average of 57% of all attendees across all 4 intervention schools. Averages of data for the 4 intervention schools show that fathers accounted for nearly 20% of total adult participants, followed by grandmothers, aunts, uncles, other adult relatives or friends, and grandfathers.

School-based family advisory councils

At all intervention schools an "Introduction to Pathways" presentation was given at a regularly scheduled PTA or PTO meeting or at a special meeting scheduled expressly for the presentation. At that meeting, the purpose of the SBFACs was explained. At the close of the meeting, adult family members were asked to sign up if they were interested in participating in the activities of the proposed council.

DISCUSSION

The Pathways family intervention pilot tested 3 strategies with third-grade children and their families: family packs, family events, and SBFACs. Based on family pack return card rates, family pack evaluation form responses, and family event attendance rosters and written comments, family packs, and family events were well received by the families. Based on the difficulty of implementation, the third strategy, SBFACs, was not well received.

Family pack return cards indicated that families were willing to take the time to discuss food choices and participate in family physical activities at home. Over the course of the school year, enthusiasm for these activities fluctuated but participation never dropped below 50%. Incentives and semester breaks were important for revitalizing interest in the family pack materials.

The family event scheduled in the evening was slightly better attended than the event scheduled during the school day, but the difference was not statistically significant. Nevertheless, this difference in attendance may reflect the time commitments of working parents and perhaps transportation restrictions. Family event evaluation forms and response cards indicated that serving

TABLE 2
Family events attendance by intervention school

	Navajo (n = 116)[1]	White Mountain Apache (n = 34)	Lakota (n = 23)	Tohono O'Odham (n = 21)
		n		
Family Fun Night				
Children[2]	97	49	74	27
Adults	81	29	47	22
Total attendees	178	78	121	49
Total attendees/Pathways third-grade students[3]	1.5	2.3	5.3	2.3
Family Celebration				
Children[2]	127	32	25	20
Adults	126	16	14	14
Total attendees	253	48	39	34
Total attendees/Pathways third-grade students[3]	2.2	1.4	1.7	1.6

[1] No. of Pathways third-grade students/intervention school.
[2] Includes Pathways third-grade students and other children.
[3] Calculated as total attendees divided by the no. of Pathways third-grade students/intervention school.

TABLE 3
Family Celebration adult attendance and relationships of attending adults to Pathways third-grade students[1]

	Navajo (n = 116)[2]	White Mountain Apache (n = 34)	Lakota (n = 23)	Tohono O'Odham (n = 21)
		%		
Mother	55.6 [70]	50.0 [8]	78.6 [11]	42.9 [6]
Father	18.3 [23]	18.8 [3]	14.3 [2]	21.4 [3]
Grandmother	6.3 [8]	18.8 [3]	7.1 [1]	7.1 [1]
Grandfather	1.6 [2]	0.0 [0]	0.0 [0]	0.0 [0]
Aunt	6.3 [8]	0.0 [0]	0.0 [0]	21.4 [3]
Uncle	1.6 [2]	0.0 [0]	0.0 [0]	7.1 [1]
Other relative[3] or friend	10.3 [13]	12.5 [2]	0.0 [0]	0.0 [0]
Total adult attendees	[126]	[16]	[14]	[14]

[1] n in brackets.
[2] No. of Pathways third-grade students per intervention school.
[3] Other relative was most often identified on attendance rosters as brother, sister, or cousin.

a meal is an important way of encouraging attendance. Family event rosters indicated that mothers made up the greatest percentage of participants, but that fathers and other members of the extended family did attend. The observation that family members other than mothers represented ≈50% of the total adult attendees at the Family Celebration suggests that adult participation might be increased by advertising the events in ways that would appeal to fathers and grandparents. These strategies could include advertisement of specific door prizes and specific games, or simply stating on promotional fliers that a special invitation is extended to fathers and grandparents. Formative assessment data suggest that fathers and grandparents, particularly grandmothers, are often after-school caretakers. Based on the literature that shows the importance of familial participation in health behavior change, encouraging the participation of fathers and extended family members in family events could only serve to support the adoption of new food choices and increased physical activity.

None of the intervention schools were able to develop and maintain an SBFAC. Insights provided by intervention school coordinators and follow-up discussions with PTA and PTO leaders and parents who attended the Introduction to Pathways presentation indicated that the advisory council strategy may have been difficult to implement for several reasons. These reasons were: *1*) families' previous commitments and distances from residences to schools created meeting scheduling and transportation barriers; *2*) regularly scheduled meetings may have implied too great a time commitment for many family members, particularly when transportation time to and from the meeting location may have exceeded 1 h; *3*) the term used to identify the group, *council*, and the proposed structure including minutes and identification of priorities, may have overemphasized the formality of the group, suggesting that a certain level of expertise was needed to participate; and *4*) the activity or inactivity of an existing PTA or PTO may not have supported the development of an adjunct committee. At some intervention schools PTAs or PTOs were too active to accommodate the additional activities of the SBFACs, while at other intervention schools the absence of a PTA or PTO made scheduling a new group difficult.

In addition, the general approach of the SBFACs within a school setting may have been culturally inappropriate. Historically, families in these communities have not been asked to critique school activities. Inviting family members to offer suggestions and criticism of a school-based program that already appeared to have made significant developmental decisions, as evidenced by professionally printed curriculum materials, off-site teacher training, and regular site visits by university personnel, may have appeared insincere or inappropriate. Given the well- organized and -developed appearance of Pathways within the schools, family members may have felt that their comments and criticisms would have made little difference in program plans or that such comments might have been misinterpreted as indicating a lack of appreciation for the program.

The Pathways family intervention will build on the success of the strategies that invited active participation in the experiential and educational elements of the program. Family support and involvement is key to achieving sustainable behavioral change. Family packs were a well-received means of familiarizing family members with the behavioral goals of the school-based program. Further pilot testing is needed to determine whether continued interest in family packs would be best achieved by reducing the number of packs per semester or by altering the format to add variety and maintain interest. Family events were well attended by members of the immediate and extended family, which highlights the importance of using a broad definition of family in American Indian communities. Given the success at drawing families into the program, additional family events that would allow more time for questions and answers might be an effective means of soliciting family feedback and advice regarding future activities.

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