

Predictors of Engagement and Retention into a Parent-Centered, Ecodevelopmental HIV Preventive Intervention for Hispanic Adolescents and their Families

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Objective This study examined predictors of engagement and retention into a parent-centered, ecodevelopmental HIV preventive intervention for Hispanic adolescents and their families. The influence of retention on changes in adolescent HIV-risk attitudes was also examined. **Methods** Participants in this study were 91 Hispanic adolescents and their primary parents. Structural equation modeling was used to identify (a) predictors of initial engagement, (b) the effects of group processes on retention, and (c) the effects of retention on change HIV-risk attitudes in adolescents. **Results** Although some participant characteristics predicted engagement, the parent–facilitator relationship quality at the initial contact was found to be the strongest predictor of engagement. Furthermore, within-group processes such as group cohesion positively predicted retention. Finally, parent retention predicted decreases in adolescent HIV-risk attitudes. **Conclusions** The results may have important implications for engagement and retention in parent-centered interventions, as well as for reducing risks for HIV transmission in Hispanic adolescents. Implications for services research are also discussed.

Key words HIV; prevention; Hispanic; parent-centered; engagement; retention.

HIV and AIDS represent a major public health problem facing today's young people. Globally, it is estimated that 50% of all new HIV infections occur among young people aged 10–24, and that 30% of the approximately 40 million people living with HIV are adolescents or young adults aged 15–24 [World Health Organization (WHO), 2003]. The AIDS pandemic has also had a considerable impact on adolescents and young adults in the United States. Although epidemiological data indicate that the number of HIV cases (between 2000 and 2003) and AIDS cases (between 1999 and 2001) has remained steady in many age groups, the number of HIV and AIDS cases among adolescents and young adults aged 15–24 in the United States is increasing

[Centers for Disease Control and Prevention (CDC-P), 2004a].

The HIV epidemic has disproportionately affected minorities in the United States, especially Hispanics and African Americans (CDC-P, 2004b). Hispanics, who are the largest and fastest growing minority group in the United States (Ramírez & de la Cruz, 2003), represent 13% of the population but account for 19% of all HIV/AIDS cases (CDC-P, 2004b). Moreover, more than one third of all U.S. Hispanics are children or adolescents (Ramírez & de la Cruz, 2003). As a result, preventing problem outcomes such as HIV in Hispanic adolescents is a primary public health concern. This is especially true because, compared with non-Hispanic White adolescents,

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Hispanic adolescents are more likely to initiate sexual activity before age 13, less likely to use condoms, and more likely to report multiple sexual partners (CDC-P, 2004b). Perhaps, as a result, Hispanics are disproportionately represented among new HIV cases (CDC-P, 2002), trailing only African Americans. Therefore, improving the efficacy of HIV prevention interventions for Hispanic adolescents, especially those that target specific risk processes associated with HIV contraction, is an important public health priority.

To combat the increasing number of HIV cases in this age group, a number of preventive intervention efforts have been designed and implemented. For example, cognitive behavioral (Jemmott, Jemmott, Fong, & McCaffree, 1999) and psychoeducational (Ebreo, Feist-Price, Siewe, & Zimmerman, 2002) interventions have been found to decrease risk factors associated with HIV transmission in adolescents. These interventions have tended to involve working directly with adolescents to change attitudes, beliefs, and intentions regarding sexual risk taking. Parent-centered preventive interventions, however, which work directly with parents and place them in the role of primary change agent by strengthening their sense of responsibility and control over the lives of their adolescents, may be more efficacious than interventions aimed directly toward adolescents (Tobler et al., 1998). Such interventions may be particularly well suited for preventing and reducing risk behaviors for HIV/AIDS (Krauss et al., 2000; Pantin, Schwartz, Sullivan, Prado, & Szapocznik, 2004). Because of its focus on family, an ecodevelopmental framework (Szapocznik & Coatsworth, 1999) may be an especially appropriate platform for designing parent-centered interventions (Pantin et al., 2004). Ecodevelopmental theory consists of three overlapping components: (a) a social-ecological framework, based on the work of Bronfenbrenner (1979), that incorporates four levels of social context; (b) a developmental perspective emphasizing the changing nature of youth and families across time as a function not only of the current social context but also of changing conditions in the social context over time; and (c) a focus on social interactions between and among individuals in the youth's and family's social context. Parent-centered interventions guided by an ecodevelopmental framework target the naturally occurring interactions among risk and protective factors at various levels of the adolescent's social environment.

An important problem in implementing parent-centered interventions, however, is that engagement and participation rates are often less than optimal (DeMarsh & Kumpfer, 1986; Kazdin, 1993; Perrino, Coatsworth,

Briones, Pantin, & Szapocznik, 2001). Participants who do not engage or are not retained in intervention programs are unlikely to receive the full benefits of participation, and the efficacy of the intervention itself may be underestimated when sufficient numbers of participants do not complete a full dosage of intervention activities. Thus, failing to engage and retain participants may interfere with attainment of some or all of the intervention goals and may threaten the internal validity of outcome results (Kazdin, 1993, 1994; Liddle & Dakof, 1995). Designing strategies to engage and retain participants in preventive interventions, however, requires an empirical understanding of the factors that predict engagement and retention.

This study was guided by two primary objectives. The first was to ascertain the factors that influence parent engagement (i.e., initial participation) and retention (i.e., continued participation) in a parent-centered, ecodevelopmental HIV preventive intervention for Hispanic adolescents and their families. The second objective was to ascertain the extent to which parent engagement and retention are related to changes in HIV-risk attitudes in adolescents. In this study, as well as in our prior prevention work (Perrino et al., 2001), parents were classified as "engaged" if they attended at least one of the first three group sessions. Retention was defined by the total number of intervention sessions that each parent attended. The model displayed in Figure 1 was used as the conceptual basis for this study. This model proposes that (a) participant characteristics previously identified in the literature (e.g., family income, family stress, positive parenting, and adolescent behavior problems) will predict engagement in the intervention; (b) parent-facilitator relationship quality at the initial contact will predict engagement in the intervention; (c) within-group processes (e.g., group cohesion) will predict retention in the intervention; and (d) retention will predict decreases in HIV-risk attitudes in adolescents.

Engagement and Retention Rates in Parent-Centered Interventions

Parent-centered preventive interventions have been shown to be efficacious in reducing adolescent behavior problems and substance use (e.g., Dishion & Kavanagh, 2000; Hanish & Tolan, 2001; Hawkins, Catalano, Brown, Vadasy, & Roberts, 1994; Pantin, Coatsworth et al., 2003) and unsafe sexual behavior (McKay, McCadam, & Gonzales, 1996). However, despite the increasing support for the efficacy of parent-centered preventive interventions (cf. Kumpfer & Szapocznik, 1998), engaging

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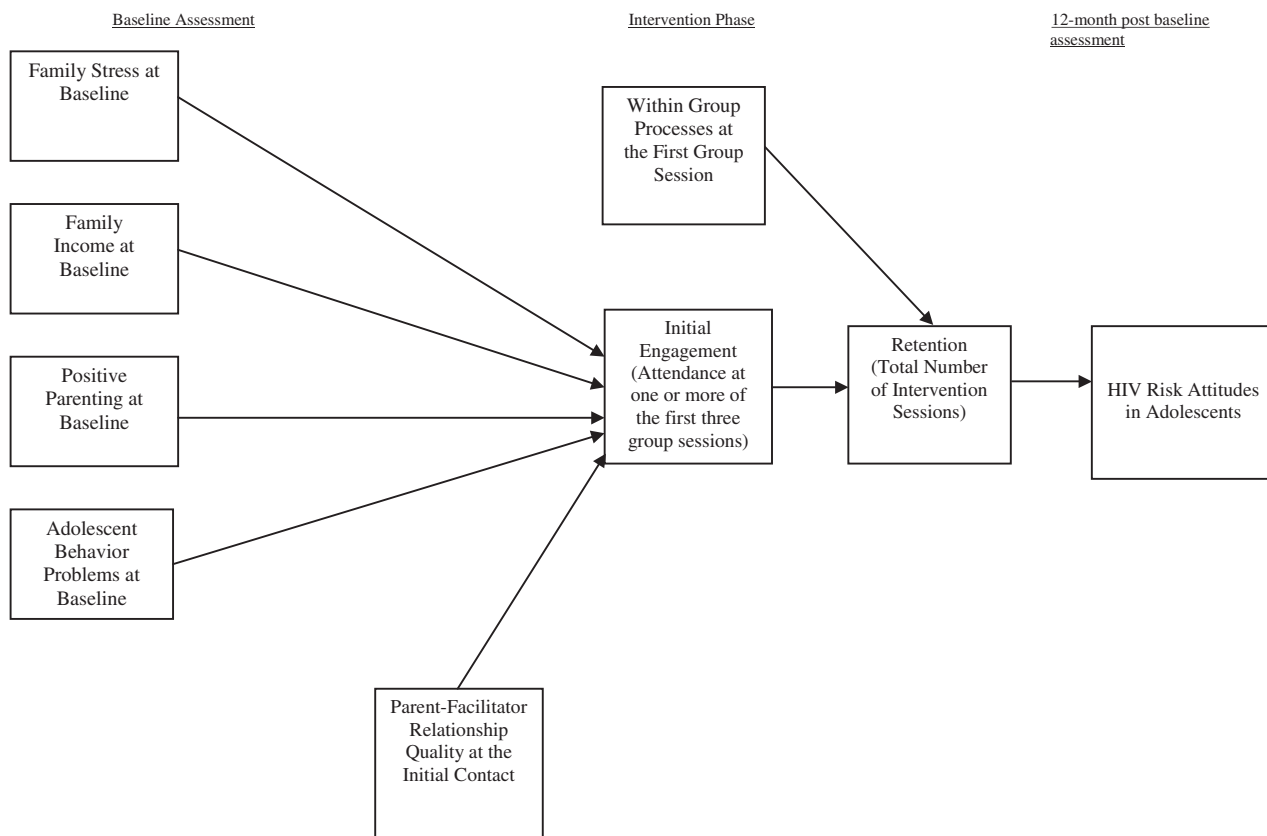


Figure 1. Conceptual model on predictors of initial engagement and retention.

and retaining parents into these interventions remains a significant challenge (DeMarsh & Kumpfer, 1986; Gorman-Smith et al., 2002). Researchers have suggested that low participation rates in parent-centered prevention trials are not uncommon (Cohen & Rice, 1995; Frankel & Simmons, 1992; Gross, Julion, & Fogg, 2001). Despite the fact that Hispanic (eighth grade) adolescents have the highest lifetime drug-use prevalence rates across all major illicit drugs (except amphetamines) (Johnston, O'Malley, Bachman, & Schulenberg, 2005), and Hispanic high school students have the highest rates of unprotected sex at last intercourse (CDC-P, 2004b) compared to African American and non-Hispanic Whites, research on the efficacy of drug abuse and HIV prevention programs for Hispanics is lacking (González-Castro et al., 2003).

Predictors of Engagement

Studies have demonstrated that a variety of participant characteristics are related to engagement in parent-centered preventive interventions (Gorman-Smith et al.,

2002; Spoth & Redmond, 1992, 1995). First, demographics and socioeconomic factors have been reliably associated with engagement into preventive interventions. In parent-centered interventions, those at risk for failing to engage include low-income families and those with limited economic resources (Fontana, Fleischman, McCarton, Metzler & Ruff, 1989; McKay et al., 1996; Spoth et al., 1997). Parents with low levels of educational attainment are also less likely to engage in a parent-centered preventive intervention (Spoth et al., 1999). In a study examining predictors of engagement in both African Americans and Hispanics (Perrino et al., 2001), ethnicity was related to engagement, with African American parents being less likely to engage than Hispanics. It should be noted, however, that the intervention examined by Perrino et al. was designed specifically for Hispanics, and that Hispanic-specific interventions may not be appropriate for African Americans (Muir, Schwartz, & Szapocznik, 2004).

Second, the literature on the effects of family stress on engagement is somewhat inconclusive, with some studies identifying parental or family stress as a positive

predictor of engagement (Perrino et al., 2001) and others identifying it as a negative predictor (Spoth, Redmond, Hockaday, Shin, & Yeol, 1996). It is possible that stress can serve either as an index of perceived need for the intervention (cf. Prado et al., 2002) or as a barrier to participation (Tolan & McKay, 1996). Third, adolescent behavior problems have been shown to predict parental engagement into preventive interventions (Haggerty et al., 2002). These studies have found that parents who report that their adolescents are experiencing behavior problems are significantly more likely to be engaged into the intervention. Finally, parenting practices, such as positive parental involvement and parental support for the adolescent, have also been found to positively predict parent attendance in parent-centered interventions (Kazdin & Mazurik, 1994; Kazdin, Mazurik, & Bass, 1993).

In addition to participant characteristics, participant–interventionist relationship quality has been suggested as an important predictor of engagement into various intervention modalities (e.g., Prado et al., 2002). Much of the research on participant–interventionist relationship quality or alliance has been conducted in the context of psychotherapy-based interventions (Chamberlain, Patterson, Reid, Kavanagh, & Forgatch, 1984; Patterson & Chamberlain, 1994; Patterson & Forgatch, 1985; Prado et al., 2002). Within such interventions, building an alliance or a positive relationship with a participant is critical to engagement (Flaskas, 1997). In our own work, building an alliance usually begins with the initial contact (Szapocznik et al., 1988). For example, Prado et al. (2002) found that participant–therapist alliance was the strongest predictor of participant engagement into a family therapy intervention for HIV-seropositive African American women. A search of the PsycInfo and MedLine literature databases from January 1990 to October 2004 yielded no published studies on the role of initial parent–interventionist or participant–facilitator relationship quality in predicting engagement into a parent-centered preventive intervention for Hispanic adolescents. This study represents an attempt to address this research gap.

Much of the research on participant characteristics as predictors of engagement into parent-centered group interventions has focused on non-Hispanic White and African American populations (e.g., Gross et al., 2001; Orrell-Valente, Pinderhughes, Valente, & Laird, 1999; Spoth et al., 1999), whereas a very limited number of studies have focused on Hispanics (e.g., Perrino et al., 2001). Given the size and growth rate of the U.S. Hispanic population (Marotta & Garcia, 2003), as well as the large proportion of children and adolescents within

this population (Ramírez & de la Cruz, 2003), identifying predictors of engagement into parent-centered preventive interventions for Hispanic youth is an important research direction.

Predictors of Retention

We suggest that understanding the role of within-group processes in retention is central to ensuring adequate dosage in parent-centered prevention interventions. Within-group process is a complex construct that can be operationalized in multiple ways. Aspects of group process that may contribute to participant retention include parent–facilitator alliance in group, alliance among group members (group cohesion), participant dissatisfaction with the group, and active participation in group activities (MacGowan, 1997). Of these dimensions, only parent–facilitator alliance and group cohesion have been studied empirically as predictors of retention. Dissatisfaction with the group and active participation in group activities have been advanced theoretically as important group processes and have been found to relate positively to participant–facilitator alliance and to group cohesion (MacGowan, 1997).

Yalom (1985) has speculated that the alliance between the participant and the facilitator is of critical importance in maintaining participant involvement in group interventions. Empirical findings support Yalom's hypothesis. For example, in the Fast Track multisite prevention trial, parent–facilitator alliance was identified as one of the only significant predictors of retention in the program (Orrell-Valente et al., 1999).

Also important is the cohesiveness of the group (i.e., group alliance/cohesion). Group cohesion generally refers to “. . . group connectedness, demonstrated by working together toward a common goal, constructive engagement around common themes, and openness to sharing personal material” (Budman, Soldz, Demby, Davis, & Merry, 1993). Group cohesion is considered a central mechanism of change in many group interventions (Bednar & Kadul, 1994; Budman, Soldz, Demby, Feldstein, & Springer, 1989; Yalom, 1985). It has been suggested that forming alliances among group parents may help to retain them in the intervention (Pantin, Schwartz et al., 2003).

This Study

The purpose of this study is to extend the engagement and retention literature by evaluating the model presented in Figure 1. This study is one of the first to examine

(a) predictors of engagement and of retention in a single study; (b) predictors of engagement and retention specifically for Hispanic families; (c) parent–facilitator relationship quality as a predictor of engagement; and (d) group processes as predictors of retention. Based on the literature cited earlier, we first hypothesized that families with comparatively higher incomes would be more likely than those with lower incomes to engage into a parent-centered, ecodevelopmental HIV preventive intervention designed to reduce risk factors for HIV transmission among Hispanic adolescents. Second, we hypothesized that positive (i.e., nurturing and responsive) parenting and adolescent behavior problems would positively predict engagement into the intervention. Third, we hypothesized that initial parent–facilitator relationship quality would positively predict engagement. Fourth, we hypothesized that within-group processes would be positively associated with retention. Fifth, in keeping with research linking participant retention with improved program outcomes, we hypothesized that retention would predict decreases in HIV-risk attitudes in adolescents. Given the mixed findings regarding family stress as a predictor of engagement, we did not advance a directional hypothesis regarding this predictor. Finally, it is important to note that no mediational hypotheses were advanced or tested in this study; such hypotheses are beyond the scope of the study.

Methods

Design

This study uses data from a randomized clinical trial testing the efficacy of Familias Unidas + Parent–Adolescent Training for HIV Prevention (PATH), an ecodevelopmental, parent-centered intervention, in preventing unsafe sexual behavior in Hispanic adolescents (Krauss et al., 2000; Pantin et al., 2004). The randomized clinical trial uses a mixed design with three intervention conditions (one experimental condition and two control conditions) and five assessment points. Participants are assessed at baseline, randomized to condition, and reassessed at 6, 12, 24, and 36 months postbaseline. Because the focus of this study is to understand the factors that influence engagement and retention in an ecodevelopmental, parent-centered preventive intervention, only those participants randomized to the experimental condition were included in these analyses.

Recruitment

The institutional review boards at both the University of Miami and the Miami-Dade County Public School System

reviewed and approved all study procedures before the study began. All participating parents and adolescents provided informed consent and assent, respectively, before enrolling in the study. Adolescents were recruited from three inner-city urban middle schools in predominantly Hispanic, low-income neighborhoods of Miami-Dade County at the end of their seventh grade academic school year.

Inclusion/Exclusion Criteria

As per the inclusion criteria for the larger prevention study, participating adolescents had to (a) be of Hispanic immigrant origin; (b) be entering the eighth grade at one of the three target middle schools at the time of the baseline assessment; and (c) have a parent or adult primary caregiver willing to participate in the study. Adolescents or parents who (a) had prior psychiatric hospitalizations; (b) were planning to move out of the catchment areas of one of the three target middle schools during year 1 of the study; (c) were planning to move outside of the South Florida area at any time during the study; or (d) had scheduling problems that prevented them from participating in the intervention were excluded from the study.

Participants

Participants in this study were 91 Hispanic immigrant parents (81 females, 10 males) and their eighth grade adolescents (53 females, 38 males) enrolled in the randomized controlled prevention trial and randomized to the experimental (Familias Unidas + PATH) condition. Each adolescent participated with one parent or parent figure. The mean age of the parents was 41.8 years ($SD = 0.4$). The largest percentage of parents were born in Nicaragua ($n = 27$; 30%) and Cuba ($n = 24$; 26%), whereas smaller percentages were born in Honduras ($n = 9$; 10%), the Dominican Republic ($n = 6$; 7%), Mexico ($n = 5$; 6%), Venezuela ($n = 5$; 6%), Puerto Rico ($n = 5$; 6%), Colombia ($n = 3$; 3%), Panama ($n = 3$; 3%), Argentina ($n = 2$; 2%), El Salvador ($n = 1$; 1%), and Guatemala ($n = 1$; 1%). Forty percent of adolescents were born in the United States, whereas the remainder were born in their families' countries of origin. Parents' length of stay varied as follows: 49% living in the United States for more than 10 years, 34% living in the United States for 3 to 10 years, and 17% living in the United States for less than 3 years. Median annual family income was between \$15,000 and \$20,000. Thirty-eight percent of the parents had less than a high school education, 32% had a high school education, and 30% had completed at least 1 year of postsecondary education.

Although both adolescents and parents were participants in the intervention, the vast majority of intervention activities are delivered directly to parents, who were then expected to implement the target skills and knowledge at home with their adolescents (Pantin et al., 2004). As a result, engagement and retention efforts were directed toward parents. As is the case with many parent-centered preventive interventions (Pantin, Schwartz et al., 2003; Pantin et al., 2004; Redmond, Spoth, Shin, & Lepper, 1999), the ultimate outcome of the intervention (e.g., improved attitudes toward sexuality and condom use) is associated with the adolescent.

Experimental Intervention Condition: Familias Unidas + PATH

The experimental condition is a combination of two modules: Familias Unidas (Pantin et al., 2004) and PATH (Krauss et al. 2000). Familias Unidas is guided by ecodevelopmental theory (Szapocznik & Coatsworth, 1999) and influenced by culturally specific models developed for Hispanic populations in Latin America (Freire, 1983) and in the United States (Szapocznik & Kurtines, 1993; Szapocznik & Williams, 2000; Szapocznik, 1994). Familias Unidas aims to prevent drug use and risky sexual behavior by: (a) improving family functioning, (b) increasing parental monitoring of peer activities, and (c) influencing adolescent social cognitive mechanisms regarding unsafe sexual behavior (see Pantin et al., 2004; for more details about the intervention).

PATH is a module designed specifically to encourage parent-adolescent communication about sexuality. The ultimate goal of encouraging parent-adolescent communication about sexuality is to impact adolescents' attitudes, intentions, and beliefs regarding sexuality. Because PATH is implemented within the context of Familias Unidas in the experimental condition, parent-adolescent communication about sexuality is encouraged in the context of improved family functioning, parent-adolescent communication in general, and improved parental monitoring of peer activities.

Intervention Implementation

Familias Unidas + PATH involves a series of intervention strategies, group processes, and skill building activities that build upon each other to achieve the intervention goals. Activities include 15 parent group sessions, four parent-adolescent discussions, eight family visits, and four booster sessions. The first family visit and the first group session are geared specifically toward engagement and retention, respectively. The contents of these activities are outlined below.

The First Family Visit

The first family visit is focused on engaging the families into the intervention. The facilitator uses this opportunity to (a) join with the family, (b) describe the intervention in detail, (c) explore and address the family's problem areas, (d) build family motivation to participate in the intervention, (e) problem solve the family's perceived barriers to participation, and (f) build a positive relationship between her/himself and the family.

First Group Session

The main objective of the first group session is to build and promote group cohesion. The facilitator uses the first group session to continue to build alliances with parents, as well as to facilitate alliance among group members by identifying commonalities among group members and encouraging direct exchanges between and among group members. In this first group session, the facilitator also (a) encourages parents to enumerate their goals for their adolescents, (b) outlines the risks and problems that confront adolescents, (c) discusses parents' roles in protecting adolescents from these risks and problems, and (d) discusses the process by which the intervention will help the parents achieve their goals and protect their adolescents from risk.

Facilitators and Training of Facilitators

Hispanic facilitators (two master's and one doctoral level) conducted the Familias Unidas + PATH intervention sessions. Before conducting intervention activities, facilitators had an average of 5 years' clinical experience working with urban, low-income Hispanic immigrant families. Facilitators were trained by the treatment developers, Dr. Hilda Pantin in Familias Unidas and Dr. Beatrice Krauss in PATH, for 3 months using the intervention manuals for the respective modules (Krauss et al., 2000; Pantin, Coatsworth, et al., 2003). Facilitators were trained to join with parents (i.e., to build parent-facilitator alliance), to promote group cohesiveness by building alliances among all group members, to help parents work on their own goals, and to encourage parents to work with each other to reach their own goals. The facilitators were trained through didactic lessons and role-plays. After completing their training, facilitators conducted pilot groups and pilot family visits. Before conducting the study intervention groups, facilitators were certified by the intervention developers.

Measures

Demographics were assessed using a 19-item form on which parents provided their date and country of birth,

number of years living in the United States, marital status, and years of education completed.

Family Income was measured through parents' reports of their annual family household income in \$5,000 intervals ranging from \$5,000 or less to \$50,000 or more (e.g., \$5,000 to \$10,000). Because of limited variability in reported family income, we operationalized family income as a dichotomous variable, where "lower family income" was defined as <\$20,000 and "higher family income" was defined as ≥\$20,000. This cutoff was chosen because the United States Census Bureau's (2003) poverty level for a family of four with one minor child is \$19,289.

Family Stress was measured using a shortened version of the Family Inventory of Life Events and Change (McCubbin, Patterson, & Wilson, 1981). This 54-item measure is completed by the parents and asks parents to indicate (i.e., 0, "no"; 1, "yes") whether their family has experienced certain stressors (e.g., within-family stressors, financial stressors) during the 6 months before assessment. A family stress composite was derived by summing the responses to the 54 items (Cronbach's $\alpha = .79$). A sample item from this measure is: "Parent quit or lost a job."

Positive Parenting was measured using the Positive Parenting subscale from the Parenting Practices Scale (Gorman-Smith, Tolan, Zelli, & Huesmann, 1996). Parents report, on a five-point Likert scale ranging from 1 (*never*) to 5 (*always*) regarding whether they reward their child for appropriate behaviors. A sample item is "In the past three months, when your child did something you like or approved of, how often did you do something special together such as going to the movies, to a game, playing a game, or going somewhere?" A positive parenting composite was derived by summing the responses to the six items (Cronbach's $\alpha = .69$).

Adolescent Behavior Problems were measured using the Revised Behavior Problem Checklist (Quay & Peterson, 1987; Rio, Quay, Santisteban, & Szapocznik, 1989). Parents rated 89 behaviors (e.g., disruptive; annoys and bothers others) that adolescents potentially exhibit on a scale ranging from 0 (*no problem*) to 2 (*severe problem*). This instrument assesses six dimensions of adolescent behavior problems: conduct disorder, socialized aggression, anxiety/withdrawal, attention problems, psychotic behavior, and motor excess. An adolescent behavior problem subscale was derived by summing the responses to the 89 items (Cronbach's $\alpha = .99$). A parent-report measure of behavior problems was used in this study because parents' perceptions of behavior problems were

expected to be most strongly related to their likelihood of engagement into the intervention than were adolescent reports of such behavior.

Engagement was measured as a dichotomous variable, "engaged" or "not engaged." Families were classified as "engaged" if a parent attended at least one of the first three group sessions. This operationalization of engagement is consistent with our prior prevention intervention engagement research (Perrino et al., 2001). Defining engagement in the same way best allows readers to compare results across studies.

Parent-facilitator relationship quality at the initial contact (first family visit) was assessed by independent raters. Two independent raters, blind to whether or not families had engaged into the intervention, observed videotapes of the first family visit and rated the family visits on five dimensions from a scale of 0 (*not at all*) to 6 (*extensively*): (a) facilitator joins or connects with all members of the family, (b) facilitator acts as a switchboard (i.e., facilitator becomes centralized in the communication of the family) and/or speaks for long periods, (c) facilitator describes the preventive intervention, (d) facilitator explores and addresses the family's problem areas, and (e) facilitator explores and develops strategies to overcome barriers to participation. Raters used a standard adherence form to record presence or absence of the four prescribed and the one proscribed (i.e., facilitator acts as a switchboard and/or speaks for long periods) facilitator behaviors. The raters also recorded the overall quality of the family visit using the same six-point Likert scale. This overall quality rating encompasses the five dimensions described above. The Director of the Intervention Process Core at the research center that housed this study trained both raters to an inter-rater reliability (kappa) coefficient of .80. The Intervention Process Core has had extensive experience conducting similar ratings (Robbins, Turner, Alexander, & Perez, 2003).

Retention was measured as the total number of intervention sessions that each parent attended. A continuous, rather than dichotomous, measure of retention was used because a continuous measure may better capture variation in participant attendance (Gorman-Smith et al., 2002). It was possible for participants who were classified as not engaged (i.e., did not attend any of the first three sessions) to receive a retention score if they attended any subsequent sessions.

Within-Group Processes were measured using the 37-item Groupwork Engagement Measure (MacGowan, 1997). This measure assesses various within-group processes, as reported by the facilitator, on a scale of 1

(rarely or none of the time) to 5 (most or all of the time). Facilitators completed one form for each participating parent within 72 h after the first group session the parent attended. Thus, facilitators completed the Groupwork Engagement Measure only for those parents who attended at least one group session. The various dimensions (MacGowan & Levenson, 2003; MacGowan, 1997) assessed in the Groupwork Engagement Measure are: (a) attendance (e.g., “The member arrives at or before start time”); (b) contributing (e.g., “The member contributes his or her share of talk time”); (c) relating to facilitator (e.g., “The member supports work that the facilitator is doing with other members”); (d) relating with members (e.g., “The member helps other group members to maintain good relations with each other”); (e) contracting or agreeing with the policies, activities, norms, and direction toward which the group is moving (e.g., “The member express continual disapproval about what the group members are doing together” [reversed]); (f) working on own problems (e.g., “The member makes an effort to achieve his/her goals”); and (g) working on others’ problems (e.g., “The member talks with (encourages) others in ways that help them focus on their problems”). A within-group process subscale score was derived by summing the seven subscales (Cronbach’s $\alpha = .85$).

Adolescent HIV-Risk Attitudes were measured using two subscales: attitudes toward sex (8 items) and attitudes toward condoms (12 items). The 20 items on these two subscales were taken from measures developed by Jemmott, Jemmott, and Fong (1992, 1998). Adolescents reported, on a five-point Likert scale ranging from 1 (*disagree strongly* or *very bad idea*) to 5 (*agree strongly* or *very good idea*), on their attitudes toward sex (e.g., “Not having sex will help me feel good about myself”) and on their attitudes about using condoms (e.g., “How do you feel about using a condom if you had sex in the next 3 months?”). For this study, Cronbach’s α for the attitudes toward sex and attitudes toward condoms subscales were .84 and .76, respectively. Although sexual behavior is the best way to assess the efficacy of HIV/AIDS preventive interventions, attitudes toward sex and condoms may serve as adequate proxies for adolescents who have yet to engage in sexual behavior (as was the case for more than 90% of this sample at baseline). Research has consistently demonstrated a strong positive relationship between attitudes about sex and future sexual behavior (e.g., Fisher, Williams, Fisher, & Malloy, 1999). For adolescent HIV-risk attitudes, data from both the baseline assessment and the first assessment after the completion of the intervention (i.e., 12-month post-

baseline assessment) were used¹. “Change scores” for the attitudes toward sex and attitudes toward condoms subscales were computed by subtracting the baseline score for each subscale from the 12-month post-baseline score. The two change scores were then summed to create a HIV-risk attitudes in adolescents composite. Each change score was standardized prior to summation. Reliability for the composite, computed as the ratio of the reliability of the measured indicators/subscales to the variance of the composite (Nunnally & Bernstein, 1994) was .82. This reliability procedure is an approximate measure of Cronbach’s α . The condom attitudes subscale was reversed scored before summation, such that the composite represented the positive adolescent’s attitudes toward unsafe sexual behavior.

Data Analytic Plan

The analytic plan consisted of five steps. First, we calculated the overall proportion of families who engaged versus did not engage in the intervention. As a check for facilitator effects, we then conducted a chi-square test to determine whether engagement rates differed significantly by facilitator. Second, we computed the mean number of intervention sessions attended for those families who engaged. As an additional check for facilitator effects, we conducted an analysis of variance to determine whether the mean number of intervention sessions attended differed significantly by facilitator. Third, we calculated means and standard deviations for all model variables. Fourth, we calculated bivariate correlations among all model variables. The bivariate correlations were used to (a) check for multicollinearity among predictor variables and (b) determine whether any error terms needed to be correlated in the final model. Fifth, we estimated the path model presented in Figure 1 using structural equation modeling. The fit of the model was evaluated in terms of three fit indices: (a) the chi-square statistic, which compares the observed covariance structure to the covariance structure specified by the model; (b) the comparative fit index (CFI), which compares the hypothesized model to a null model with no paths or latent variables; and (c) the root mean square error of approximation (RMSEA), which estimates the degree to

¹The 6-month assessment data were not used, because we were interested in examining the effects of retention throughout the full intervention on risk factors associated with HIV transmission in adolescents, and the 6-month assessment occurs midway through the intervention. The 24-month and 36-month assessment data were not used, because data collection for these assessment points has not yet been completed.

Table I. Means, Standard Deviation, and Bivariate Correlations Among Predictors of Initial Engagement, Initial Engagement, Predictors of Retention, Retention, and HIV-Risk Attitudes in Adolescents

	1	2	3	4	5	6	7	8	9	<i>M (SD)</i>
1. Family stress at baseline		-.19	-.20	.26*	.001	.15	-.03	.16	-.07	5.59 (4.54)
2. Family income at baseline			-.03	-.010	.11	.22*	-.03	.07	.04	NA
3. Positive parenting at baseline				-.14	-.15	-.10	.05	-.11	.02	22.97 (4.94)
4. Adolescent behavior problems at baseline					.02	.11	-.12	.06	-.28*	17.65 (26.51)
5. Parent-facilitator relationship quality at the initial contact						.35**	.07	.12	.08	3.82 (1.29)
6. Initial engagement							NA ^a	.50**	.15	NA
7. Within-group processes at the first group session								.29**	.22	110.00 (21.61)
8. Retention									.34**	16.88 (8.41)
9. HIV-risk attitudes in adolescents										-.069 (1.51)

^aCorrelation cannot be computed because the initial engagement variable is constant for all participants who had a within-group process score.

* $p < .05$.

** $p < .01$.

which the covariance structure observed in the data deviates from that specified in the model. Nonsignificant chi-square values, CFI values of .95 or greater, and RMSEA values of .08 or less (Bentler & Bonnett, 1980; Byrne, 2001; Kline, 1998), are indicative of good model fit. Sixth, provided that the parent-facilitator relationship quality at the initial contact visit significantly predicted engagement, planned post hoc “decomposition” analyses were conducted. These decomposition analyses were conducted as single-predictor logistic regression analyses to determine which aspect or aspects of the parent-facilitator relationship quality at the initial contact most strongly predicted engagement. Similarly, provided that the within-group process variable significantly predicted retention, post hoc decomposition analyses using single-predictor linear regression models were conducted to ascertain which aspects of within-group process significantly predicted retention.

It is important to note that the predictive paths specified in the model do represent a temporal sequence. Participant characteristics and parent-facilitator relationship quality were both measured before the first group session. Engagement, defined as attendance at one of the first three group sessions, occurred before the facilitator ratings of within-group processes; and these facilitator ratings were obtained before the majority of intervention sessions (which were used as the measure of retention). Change in adolescents' HIV-risk attitudes was measured over a time span encompassing the entire intervention, such that the assessment of such changes occurred after all of the intervention sessions had been completed. The parallel between the temporal sequence and the directionality of the predictive paths may permit us to dismiss many alternative path models that could be formulated among the variables in this study (cf. Kline, 1998; Quintana & Maxwell, 1999).

Results

Of the 91 parents assigned to the Familias Unidas + PATH condition, 82 (90%) were classified as engaged in the intervention. Engagement rates did not differ significantly by facilitator, $\chi^2(2, N = 91) = 3.31, ns$. Parents who engaged in the intervention attended an average of 18.54 intervention sessions ($SD = 7.08$). The number of intervention sessions attended by the engaged families did not differ significantly by facilitator, $F(2, 79) = 0.43, ns$.

The means, standard deviations, and bivariate correlations among the model variables are summarized in Table I. Correlations among the predictors of engagement were modest and do not suggest the presence of multicollinearity. In fact, the only significant correlation among the predictors of engagement involved baseline levels of family stress and adolescent behavior problems ($r = .26, p < .05$). To account for this significant correlation, a covariance path between the error term of these two variables was added when estimating the hypothesized model presented in Figure 1.

The model provided an adequate fit to the data, $\chi^2(27) = 28.09, p = .41, CFI = .99, RMSEA = .02$. To explore the relationships within the overall model², we examined the path coefficients for each set of relationships within the model. Overall, the model accounted

²The number of participants per parameter estimated is the absolute minimum recommended by Kline (1998) to ensure model stability. To address this potential concern, we split the model in Figure 2 into two separate path models. Model 1 examined the predictors of engagement, and Model 2 examined the predictors of retention and the predictor of HIV risk attitudes. The magnitudes of the path coefficients, the significance of the path coefficients, and the fit indices of these two models were nearly identical to that of the model presented here. As a result, the single model is presented here. The results of the two separate models can be obtained from the senior author.

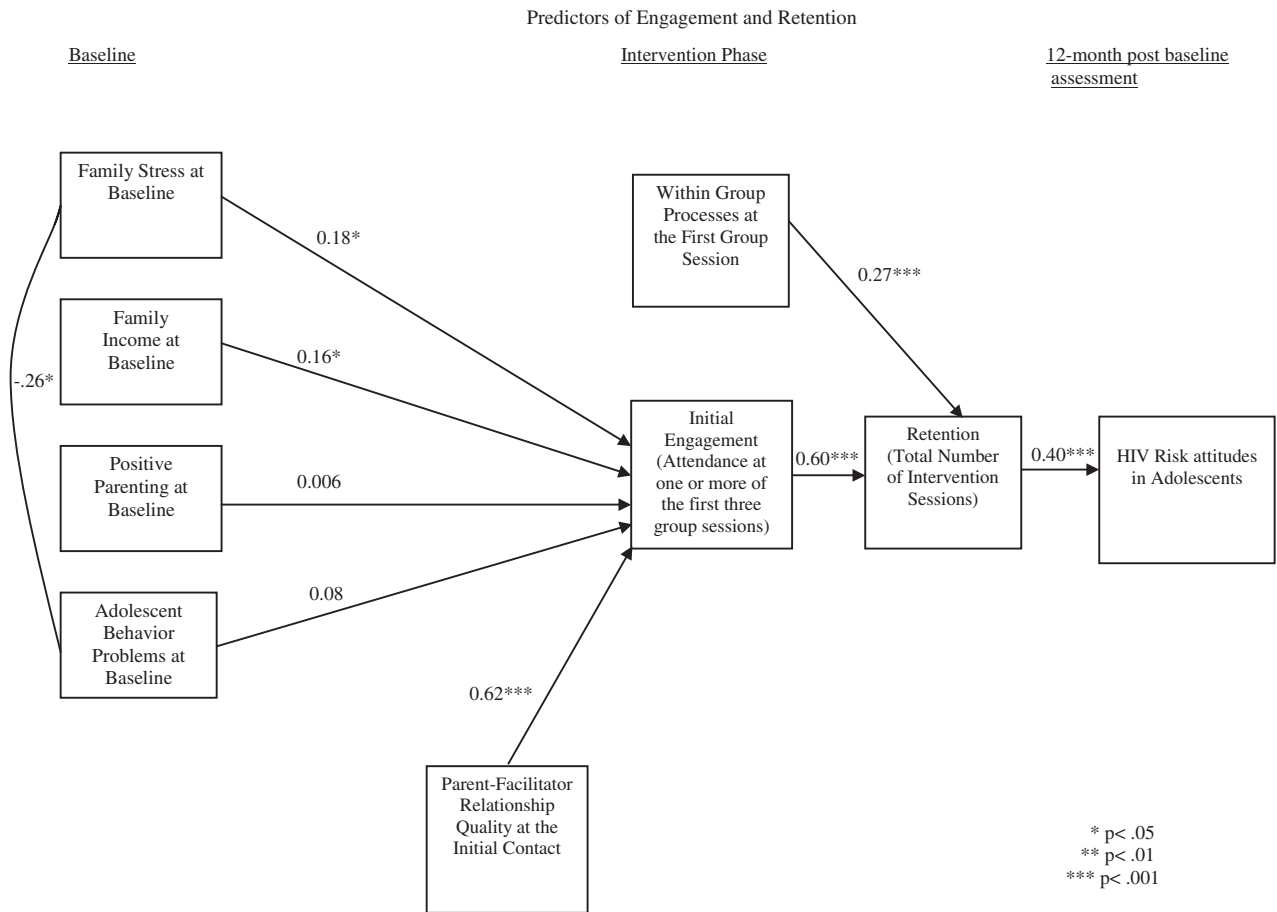


Figure 2. Structural equations model depicting the predictors of initial engagement and retention.

for 43% of the variance in retention and 16.2% of the variance in changes in HIV-risk attitudes in adolescents. (The percent variance in initial engagement was not presented because initial engagement was operationalized as a categorical variable.) To explore the relationships within the overall model, we examined the path coefficients for each set of relationships within the model (Figure 2).

Predictors of Engagement

The path coefficients suggest that, of the four participant characteristics previously identified in the literature and hypothesized to predict engagement in this study, only family income ($\beta = .16, p < .05$) and family stress ($\beta = .18, p < .05$) significantly predicted engagement. Those parents with family income above the poverty level and who reported more family stress at baseline were most likely to engage into the intervention. As hypothesized, the observational ratings of parent-facilitator relationship quality at the initial contact were positively associated with engagement into the intervention, $\beta = .62, p < .001$.

Predictors of Retention

As hypothesized, within-group processes were significantly associated with retention in the intervention. Participants who scored higher on facilitator report of within-group processes were more likely to be retained in the intervention, $\beta = .27, p < .01$. Finally, the results suggest that adolescents whose parents attended more intervention sessions were more likely to report a decrease in HIV-risk attitudes during the course of the intervention, $\beta = .40, p < .001$.

Post Hoc Analyses to Decompose the Effects of Parent-Facilitator Relationship Quality at the Initial Contact on Engagement

To identify which aspects of parent-facilitator relationship quality at the initial contact were most associated with engagement into the intervention, we decomposed the statistically significant effect of parent-facilitator relationship quality at the initial contact into five domains described in the measures section (i.e., facilitator joins with the family, facilitator speaks for long periods, facilitator describes the preventive intervention,

Table II. Post Hoc Logistic Regressions: Decomposition of the Participant–Facilitator Relationship Quality at the Initial Contact

Variable name	β	SE	Odds ratio	Confidence interval	χ^2 (LRT)	p Value
Joins all members of the group	.91	.23	2.50	1.58–3.93	19.93	<.001
Acts as switchboard and/or speaks	-.42	.16	.66	.48–.91	5.85	.02
Describes Familias Unidas program	1.04	.27	2.84	1.68–4.80	20.67	<.001
Explores and addresses the family's problem areas	.97	.25	2.63	1.62–4.27	19.34	<.001
Explores and develops strategies	.29	.25	1.33	.81–2.19	1.40	.24

The Likelihood Ratio Test (LRT) was used as opposed to the Wald statistic, because the LRT is a more powerful test (Hauck & Donner, 1977; Jennings, 1986).

facilitator explores and addresses the family's problem area, and facilitator explores and develops strategies to overcome barriers to participation). Each domain or subscale was then examined in a separate logistic regression model. The results showed (Table II) that those parents whose facilitator joined with all family members were 2.5 times more likely to engage in the intervention than were those parents whose facilitator did not join with all family members (OR = 2.50, $p < .001$). Parents were 2.8 times more likely (OR = 2.84, $p < .001$) to engage when the intervention program was described more thoroughly than when it was not. Similarly, parents were 2.6 times more likely to engage in the intervention when the facilitator explored and addressed the family's problem areas (OR = 2.63, $p < .001$). On the other hand, when the facilitator acted as a switchboard, parents were 1.5 times less likely to engage (OR = 0.66, $p < .02$). Surprisingly, whether the facilitator explored and developed strategies to overcome barriers to participation did not significantly discriminate between those parents who did versus did not engage.

Post Hoc Analyses to Decompose the Effects of Within-Group Processes on Retention

Parallel post hoc analyses were conducted to determine which within-group processes contributed most to intervention retention. The results summarized in Table III indicate that those parents who were reported by the facilitator to have contributed the most during the first group session, $\beta = .28$, $p < .02$; who related the most

Table III. Post Hoc Linear Regressions: Decomposition of Within-Group Processes

Variable name	Standardized β	t Statistic	p Value
Attending subscale	.10	.87	.39
Contributing subscale	.28	2.54	.013
Relating to facilitator subscale	.096	.84	.41
Relating to member subscale	.28	2.49	.015
Contracting subscale	.02	.19	.853
Working on own problems	.24	2.11	.038
Working on others problems	.21	1.81	.07

with other parents in the group, $\beta = .28$, $p < .02$; and who worked on their own problems, $\beta = .24$, $p < .04$, attended the greatest numbers of sessions. Surprisingly, parent–facilitator alliance at the first group session was not associated with intervention attendance. Similarly, the subscales that assessed whether the parent arrived on time, left early, or worked on the problems of other group members did not predict retention in the intervention.

Discussion

This study was designed to (a) examine predictors of engagement and retention in a parent-centered, ecodevelopmental HIV preventive intervention for Hispanic adolescents, as well as (b) the effect of retention on changes in adolescents' HIV-risk attitudes. Based on previous findings, we hypothesized that participant characteristics at baseline and parent–facilitator relationship quality at the initial contact would predict engagement. Results indicated that only two participant characteristics (family income and family stress) predicted engagement. With regard to family income, it is possible that parents in families with annual incomes below the poverty level may be more likely to work multiple jobs and not to be available to attend intervention sessions. The fact that parents reporting more family stress were more likely to engage is promising, because these parents would most likely benefit from a parent-centered, ecodevelopmental preventive intervention. Although prior studies with non-Hispanic populations have found that positive parenting and adolescent behavior problems predict engagement into parent-centered interventions (e.g., Kazdin & Mazurik, 1994; Kazdin et al., 1993), this study failed to replicate these findings.

On the other hand, parent–facilitator relationship quality at the initial contact was the strongest predictor of engagement. This finding highlights the critical importance of the parent–interventionist relationship quality at the initial contact (cf. Szapocznik et al., 1988). The post hoc analyses suggest that the most important

aspects of parent–facilitator relationship quality at the initial contact are joining or connecting with all family members, describing the intervention fully, and exploring and addressing the family’s problem areas. Facilitators also should be discouraged from dominating the interaction with the family (e.g., talking too much or attempting to interpret family members’ statements). Therefore, it is clinically important to note that specific facilitator behaviors may be the determining factor in whether a parent engages or fails to engage in a parent-centered intervention. It is vitally important that facilitators develop a positive relationship quality with the participant at the initial contact to mitigate the influence of participant characteristics. Thus, these findings suggest that, in parent-centered preventive interventions for Hispanic adolescents, specific facilitator behaviors can facilitate engagement.

These findings may have important implications for services research in general. For example, a primary goal of services research is to “understand . . . who enters and receives [services] as well as how to decrease barriers and improve access” (Blue Ribbon Task Force on NIDA Health Services Research, 2004). These results suggest that the first contact with client families is extremely important. Moreover, at this first contact, the overall quality of the facilitator–family relationship may be more important than attending to specific content issues (e.g., problem-solving specific barriers). Creating such a positive relationship with the family is far more likely to be accomplished successfully by a facilitator or clinician than by a receptionist or admissions worker. This conclusion suggests that a facilitator or clinician should make the first contact with the family, whether in person or over the phone.

Regarding predictors of retention, we found that within-group processes during the first group session strongly predicted retention. As suggested by our post hoc analyses, three aspects of within-group processes—group cohesion (i.e., whether the parent contributed to the group and whether the parent formed working relationships with other parents during group), whether the parent contributed to the group by expressing her/his thoughts, and whether the parent was working on his/her own goals during the first group session—predicted retention. This finding speaks to the importance of promoting group cohesion and encouraging parents to work on their own problems during the first group session. On the other hand, contracting or working on other parents’ problems did not predict retention. Hence, although wanting to help other parents may be a motivator later in the intervention, in the first group ses-

sion if parents do not feel that the intervention is helping them, they are likely to drop out. This is consistent with Szapocznik et al. (1978), who suggest that Hispanics prefer interventions that provide immediate problem-oriented solutions. Similarly, the facilitators’ report of alliance with each parent did not predict retention. It should be noted that the parents who attended one or more of the first three group sessions, had already established an alliance with the facilitator and therefore, had engaged into, the intervention. It is also possible that once parents have been engaged in the intervention, group processes become more important in retaining them. Further research is needed to explore this possibility in greater detail.

The results also suggest that retaining Hispanic parents in an HIV preventive intervention may lead to decreases in adolescents’ positive attitudes toward risk behaviors associated with HIV transmission. Hence, parent retention in the groups appears to be related to adolescent outcomes. This is consistent with prior studies that have shown that interventions that provide more dosage to participants tend to have the more favorable outcomes (e.g., Rotheram-Borus, Koopman, Haignere, & Davies, 1991). The fact that adolescents’ HIV-risk attitudes decreased, despite minimal direct adolescent involvement in the intervention, indicates that intervening with parents can be effective in bringing about desired changes in the adolescents.

Finally, the high engagement rate (90%) observed in this study is noteworthy, given that engagement rates in parent-centered interventions tend to be fairly low. The University of Miami’s Center for Family Studies has a long history of studying those factors that predict engagement and retention into different intervention modalities (Mitrani, Prado, Feaster, Robinson-Batista, & Szapocznik, 2003; Perrino et al., 2001; Prado et al., 2002) as well as developing and testing specialized engagement interventions (Coatsworth, Santisteban, McBride, & Szapocznik, 2001; Dakof et al., 2003; Santisteban et al., 1996; Szapocznik et al., 1988). These specialized engagement strategies focus on changing interventionist behaviors as a way of engaging families (Santisteban et al., 1996). The structural-strategic techniques (e.g., joining) tested in these specialized engagement interventions have been integrated into our preventive intervention. These results suggest that these engagement strategies may be effective. Moreover, as Pantin, Schwartz et al. (2003) speculated and as supported by the study, the strategy of aggregating Hispanic parents into parent-support groups and actively building alliances between group members may promote retention.

Limitations

These results should be considered in light of several important limitations. First, the Hispanic sample used in this study is not representative of the larger U.S. Hispanic population. Mexican Americans and Puerto Ricans, the two largest Hispanic subgroups in the United States (Ramírez & de la Cruz, 2003), were not well represented in this sample. Therefore, although these results are promising, they cannot be generalized to the larger U.S. Hispanic population without further replication. Second, the lack of variability in initial engagement (i.e., 90% engaged, whereas 10% did not engage) may have contributed to the null association of initial engagement with positive parenting and adolescent behavior problems. However, it should be noted that, despite the relative lack of variability in engagement, family stress, family income, and parent–facilitator relationship quality significantly predicted initial engagement. Third, our sample size was small to moderate, and therefore, the power to uncover small effect sizes may have been limited. However, despite the small sample size, parent–facilitator relationship quality and within-group processes were strong predictors of engagement and retention, respectively, and retention of parents was a strong predictor of decreases in adolescents' HIV-risk attitudes. Fourth, although independent ratings on the parent–facilitator relationship quality at the initial contact were obtained, it would have been advantageous to also obtain independent ratings of group process. Because the facilitator provided the group process ratings, it is possible that facilitators may have rated parents who attended the first group session more favorably than parents who did not attend the first group session but eventually attended an intervention session.

Conclusions

Despite these limitations, the results of this study suggest that Hispanics, who tend to receive fewer health services than non-Hispanic Whites (Miranda, Azocar, Organista, Muñoz, & Leiberman, 1996), can be effectively engaged and retained in parent-centered preventive interventions. Moreover, these results provide clear evidence as to how engagement (facilitator behaviors) and retention (group processes) can be achieved. It is important to note, however, that the intervention through which the engagement and retention activities took place is designed specifically for Hispanic parents and their adolescents. Because it is likely that interventions tailored toward the cultural background of the target population are more likely to engage and retain

participants from that population (Kumpfer, Alvarado, Smith, & Bellamy, 2002), interventions delivered to other ethnic or cultural groups should incorporate ingredients designed specifically for those groups.

This study has provided much-needed empirical support for (a) the role of parent–facilitator relationship quality at the initial contact in parent engagement and (b) the role of within-group processes in parent retention in parent-centered preventive interventions. These results suggest that facilitators should make the first contact with each client family, and that the overall quality of the relationship between facilitator and parent is of critical importance. Moreover, these results demonstrate the importance of parent retention for adolescent HIV-risk reduction. Provided that these results are replicated with more nationally representative Hispanic samples, the results appear to have important implications for preventing HIV in Hispanic adolescents. It appears that if certain engagement (joining family members, accurately describing the intervention, and exploring/addressing the family's problem areas) and retention (promoting group cohesion, encouraging parents to contribute to group discussion, and encouraging parents to work on their own problems) strategies are used effectively, Hispanic parents can be engaged and retained in parent-centered HIV preventive interventions. These results also suggest that retaining Hispanic parents in HIV preventive interventions is associated with decreases in adolescents' HIV-risk attitudes. Parent-centered approaches may, therefore, hold a great deal of promise for preventing HIV in a rapidly growing (and at-risk) segment of the American adolescent population.

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