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Patterns of Retention in a Preventive Intervention with Ethnic Minority Families

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Abstract

This study examined socio-demographic, child, and family-level correlates of retention patterns among parent participants of Familias Unidas/SEPI (Coatsworth, Pantin, & Szapocznik, 2002), a randomized, controlled trial of a family-focused preventive intervention. The current study's aim was to identify variables that could be used to classify ethnic minority (African American and Hispanic) care-givers (N = 143) into their known patterns of retention across 30 sessions of the intervention. Person-centered analyses identified three broad attendance pattern groups: (a) non-attenders; (b) variable-attenders; (c) consistent-high-attenders. Subgroups of the variable-attender group included: (a) dropouts; (b) variable-low-attenders; (c) variable-high-attenders. Four socio-demographic indicators were significant discriminators of the broad retention patterns. Three family-level factors were significant discriminators of the variable-attender subgroups. Additional significant mean/rate differences among retention pattern groups on correlates are reported. Implications for how retention is examined in preventive interventions and for developing intervention strategies for improving retention rates are discussed.

Editors' Strategic Implications: The authors address factors related to clients' engagement and retention from multiple ecological levels. Lessons from this low income, low education, minority sample may prove useful to program developers who want to build in supports and incentives prior to program implementation.

Keywords

retention; attendance; prevention; minority; family

There is now considerable empirical evidence supporting the efficacy of family-focused interventions for altering risky family processes and reducing or preventing youth substance abuse, mental health, and behavior problems (Bauman et al., 2002; Dishion & Kavanagh, 2000; Henggeler, Shoenwald, Borduin, Rowland, & Cunningham, 1998; Kumpfer & Alvarado, 2003; Olds, 2002; Pantin et al., 2003; Park et al., 2000; Reid, Webster-Stratton, & Baydar, 2004; Sanders, Turner, & Markie-Dadds, 2002; Spoth & Redmond, 2002; Taylor & Biglan, 1998). As efficacious family-centered preventive interventions move toward serving a broader spectrum of the population (Spoth, Kavanagh, & Dishion, 2002), one of the most critical research and practice challenges to be addressed involves increasing our understanding of the personal, social-contextual, and interpersonal factors that predict recruitment, engagement, and

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retention of families in the interventions (Spath & Redmond, 2000). Extending that knowledge base can assist researchers and practitioners in developing or refining strategies to maximize the public health benefit of family-centered preventive intervention.

Most work in this area of prevention science has focused on understanding rates and predictors of engagement (getting participants to come to the intervention) (see Spath & Redmond, 2000, 2002 for reviews). Studies demonstrating that greater intervention dosage typically leads to better outcomes (see Baydar, Reid, & Webster-Stratton, 2003; Domitrovich & Greenberg, 2000; Lyons-Ruth & Melnick, 2004; Pantin, Coatsworth, et al., 2003; Spath, Redmond, & Lepper, 1999) suggest that greater attention to understanding rates and predictors of retention (keeping families in the intervention) appears warranted. Knowledge development regarding retention has been restricted in part because of measurement strategies such as classifying participants into binary categories (e.g., dropouts vs. completers) that are unlikely to accurately represent variation in attendance across the length of the intervention. This study uses a person-oriented strategy to examine *patterns* of retention and their correlates in a preventive intervention for ethnic minority families. A person-oriented, or pattern-oriented, approach disaggregates the sample into more homogeneous groups of individuals showing similar scores or patterns of scores on variables of interest (Bergman, 1998).

Attendance rates in family-focused interventions and in parent trainings are typically low, with average participation in universal parenting programs reported to be around 20 to 33 percent (Coie et al., 1991). Even within relatively short term interventions with fewer sessions (e.g., five to 15), considerable variability in attendance is common (Barkley et al., 2000; Reid, Eddy, Fetrow, & Stoolmiller, 1999; Webster-Stratton, Reid, & Hammond, 2001). With interventions that consist of more sessions and span longer time periods, variability may increase (>August, Realmuto, Hektner, & Bloomquist, 2001). Despite the importance of understanding retention, relatively few studies have focused on this issue. Moreover, understanding variability within interventions may be a critically important issue for understanding efficacy and effectiveness of family-centered programs.

Measuring Retention

The most common way that retention in an intervention is measured is dosage: the number of sessions attended. Using session attendance, retention is often conceptualized categorically and attempts are made to cluster individuals into homogenous groups. The easiest way of clustering participants is by classifying them as *dropouts* or *completers*, yet these groups are often quite heterogeneous with respect to the number and pattern of sessions that they did attend. Moreover, different classification criteria across studies can lead to the unfortunate situation in which dropouts in one study could be considered completers (or *maintainers*) in another (Kazdin, Stolar, & Marciano, 1995). Refined classifications that reduce within group variability (i.e., *high* or *low attenders*) exist in studies with relatively small numbers of available intervention sessions (e.g., five to 12) (Dumka, Garza, Roosa, & Stoerzinger, 1997; Gross, Julion, & Fogg, 2001; Spath, Goldberg, & Redmond, 1999). Retention becomes increasingly difficult to operationalize as the number of possible sessions increases and the structure of the intervention changes from a set number of sessions delivered to all participants to variability in dose across groups or persons. Moreover, dosage itself is not a precise measure of intervention receipt, because participants who attend a similar number of sessions (e.g., 12 sessions of a 20 session intervention) may actually be receiving different *types* of dosage because they are attending different sessions, learning different skills, and participating in different activities.

One method that has been used to account for variability in number of sessions offered to intervention participants is to calculate a *participation rate proportion score* (Orrell-Valente,

Pinderhughes, Valente, Laird, & Conduct Problems Prevention Research Group, 1999). A rate proportion score (sessions attended/sessions offered) accounts for variability in number of sessions offered, but because some parents may attend sporadically during the initial sessions of an intervention but attend consistently in later sessions after receiving continued contact with coordinators (Prinz et al., 2001), similar scores may still reflect different intervention experiences. A person-oriented conceptual and analytic approach (Bergman, 1998) to investigating retention may enhance our understanding of *patterns* of attendance and their correlates.

In a demonstration of this approach, Gorman-Smith, Tolan, Henry, and Leventhal (2002) employed cluster analysis to group participants with similar patterns of participation. Results identified three distinct groups (i.e., joiners, responders, and minimal responders) based upon levels of recruitment effort (e.g., number of phone contacts, home visits, etc.) and subsequent participation (e.g., total attended out of 20 sessions, perceived participant enthusiasm, effort to continue) in a family-focused intervention. Results of this study suggest that these clusters of participants characterize the sample in a way that a linear measure of dosage, or binary classification (e.g., completers vs. dropouts) could not. Comparable patterns of participation were also evident in a second study (Smith et al., 2004).

Predictors of Retention

Because no single broad demographic characteristic or risk factor appears to be necessary or sufficient to influence dropout, researchers must examine how multiple influences accumulate to increase the likelihood of attrition (Kazdin, Holland, Crowley, & Breton, 1997). The majority of prior research on participation in preventive interventions points to three main categories of factors with predictive value: socio-demographic factors, child level factors, and family level factors.

Socio-Demographic Factors

Studies show that indicators of socio-economic status (SES) such as parental education or income may affect program participation. Spoth and colleagues (Spoth, Redmond, & Shin, 2000; Spoth, Redmond, Kahn, & Shin, 1997) have found links between intervention enrollment and parent educational attainment, but *not* parent income, in family-based programs. Other researchers have found low levels of income to be a risk factor for failing to enroll or for dropping out of interventions (McKay, McCadam, & Gonzales, 1996; Rohrbach et al., 1994). Given the conflicting findings, both education and income levels were examined as separate predictors of retention in the current study.

Other socio-demographic factors that have commonly been found to relate to engagement and retention are race/ethnicity and marital status (Cohen & Linton, 1995; Cohen & Rice, 1995; Dumka et al., 1997; Perrino, Coatsworth, Briones, Pantin, & Szapocznik, 2001; Rohrbach et al., 1994). Racial and ethnic differences have been found in rates of engagement and retention (Perrino et al., 2001; Harachi, Catalano, & Hawkins, 1997) but this variable may be most important as an indicator of the match between participants and facilitator (Orrell-Valente et al., 1999), or among participants in multi-family groups. Family size may also be an important socio-demographic factor because the need for child-care is frequently a barrier to participation. In addition, siblings in families at risk may show similar patterns of problem behaviors and parents may drop out from an intervention focusing on the behavior of one child to attend to problems with another child in the family (Gross et al., 2001).

Child Level Factors

Studies show mixed results regarding the relations between child functioning (e.g., behavioral problems, academic performance, social competence) and family participation (Perrino et al., 2001; Spoth & Redmond, 2000). Researchers often state that those families who need the intervention *most* may be *less* likely to attend. In contrast, parents who perceive their children as 'doing fine' may not embrace the rationale for attending a prevention program (Spoth & Redmond, 1995). Some research has indicated that child socio-emotional difficulties are *unrelated* to differential participation in family-focused interventions (Spoth et al., 1999). Others have found higher levels of caregivers' perceived need for the intervention (based on child problems) to be related to increased levels of engagement (Fontana, Fleischman, McCarton, Meltzer, & Ruff, 1988). These varied findings call for further scrutiny of child level factors as predictors of family participation in preventive interventions.

Family Level Factors

Many family level variables may serve to promote or hinder retention in family-focused programs. This may be especially important for the participation of ethnic minority families, for whom communal parenting and family loyalty are key components of family functioning (Forehand & Kotchick, 1996). Spoth, Redmond, Hockaday, and Shin (1996) found that in situations where one family member wants to enroll in the intervention (often the mother), the refusal of another member (often the father) may ultimately result in the entire family refusing to participate. Hence, family support (or opposition) and the number of caregivers participating in the intervention deserve further analysis as potential influences on family retention patterns. In addition, families may experience numerous barriers to participation including factors such as transportation difficulties, childcare needs, and work schedules.

Additional family level factors warranting examination include parental motivation to participate and family life stress. Studies have shown that the intentions of parents to enroll in a family-focused intervention are predictive of participation (Spoth et al., 1997). Also, those parents who are motivated to share their experiences with other parents and learn to discipline their children more effectively were more likely to remain in an intervention conducted by Gross and colleagues (2001). In contrast, levels of stress and numbers of stressful life events experienced by parents have produced varied results in predicting levels of participation. A possible explanation is that parent stress could be conceptualized as either a perceived need for the intervention or as a barrier to participation (see Perrino et al., 2001).

The Current Study

The present study was guided by two research aims. The first was to identify and describe patterns of retention in a family focused intervention for ethnic minority families. The second aim was to examine whether variables from three broad classes of factors (demographics, child, and family factors) would discriminate among groups of individuals demonstrating distinct attendance patterns.

METHODS

Participants

One hundred forty-three families (47 African American, 96 Hispanic) who had been randomly assigned to the intervention condition of the Familias Unidas/SEPI (Structural Ecosystems Preventive Intervention) program (Coatsworth, Pantin, & Szapocznik, 2002; Pantin, Schwartz, Sullivan, Coatsworth, & Szapocznik, 2003) were included in the current study. The family-centered intervention was delivered primarily to adult caregivers so they are the focus of this study. Ninety-two percent of the primary caregivers were mothers. The remainder of primary

caregivers tended to be fathers (3.5%) or grandmothers (3.5%). Mean age of the primary caregivers was 40.2 years (*SD* 8.2); the mean age of the youth was 12.4 years (*SD* = 0.8). Participants were poor, with 79% of families reporting annual household incomes of less than \$25,000. Among Hispanic families, 94% of the parents were immigrants. The most common countries of origin for immigrant Hispanic families were Cuba (38%) and Nicaragua (20%). Immigrant Hispanic parents had resided in the United States for a mean of 14.1 years (*SD* = 10.3).

Procedures

Participant Recruitment

Participants were recruited from the 6th and 7th grade rosters of three middle schools serving low-income neighborhoods in a large metropolitan area in the southeastern United States. Families were recruited via letters sent to parents, presentations at parents' nights, and home-visitations by school personnel. Families that expressed interest in the intervention were matched on race/ethnicity to one of the project's Master's-level clinicians. Clinicians then visited interested families to discuss the project, to map family concerns onto the activities of the intervention, and to conduct the CFS Pre-Intervention Screening Interview (Center for Family Studies, 1996). Clinicians were trained to deliver this standardized interview prior to visiting any families.

The study used rolling recruitment and assignment to condition to ease burden on the assessment and clinical staff. Families were stratified by race/ethnicity, school, and grade. When 20-25 families from the same stratification group had agreed to participate and had completed a baseline assessment, they were randomly assigned to intervention or control conditions with approximately 60% being assigned to the experimental condition.

Intervention

Because a full explanation of the clinical aspects of the intervention is available in Pantin, Schwartz, et al. (2003), this section provides only a brief description. The intervention was conducted in 12 multi-parent groups (eight Hispanic and four African American groups) referred to as Parent Support Networks (PSN). PSN's were comprised of eight to 12 families and were led by trained Master's-level clinicians. In contrast to the highly structured and content-focused didactic format used in many psycho-educational prevention programs, Familias Unidas/SEPI focused strongly on the intervention process and adopted a "problem-posing and participatory-learning" approach (Freire, 1983). This empowering technique engages parents in a series of discussion and action experiences that help build a sense of self-efficacy and competence. The groups' discussions focused on understanding risk and protection in the various contexts that their adolescents find themselves (e.g., school, peers, family) and strengths and weaknesses of the parents' connections with these contexts. Role-plays and skill-building activities were used to demonstrate, build, and practice specific parenting skills.

Groups were designed to meet weekly for 1 hr for the entire school year. Attendance was facilitated by various incentives including cash payment of \$10 for each session attended, food, and childcare. Transportation was not an issue for the majority of families since most resided in nearby neighborhoods.

Facilitators and Training

Three female Hispanic facilitators (Master's-level clinicians) and two female African American facilitators (one Master's-level clinician and one M.D.) led the PSN's. The facilitators had an average of five years of clinical experience conducting family and group

interventions. One of the authors trained and certified facilitators to implement the intervention. Training totaled 24 hr and included didactic lessons, role-plays, and practice group sessions. Each facilitator also conducted six pilot group sessions prior to the start of the intervention study.

Assessment

Assessments were conducted prior to randomization or any intervention activities in the participants' homes or at another convenient location. The average completion time for the battery ranged from 45 to 75 min. All measures were administered in interview form and in the preferred language of the participant. All African American parents completed their assessments in English, while the majority of Hispanic parents (62.9%) completed their assessments in Spanish. Assessors recorded participants' responses on laptop computers. The Spanish versions of the measures were established through back translation. Differences between the original and back-translated versions of each measure were resolved through committee review and discussion (Kurtines & Szapocznik, 1995).

Measures

Retention

Intervention facilitators logged *attendance* (1: present and 0: not present) at every session and attendance data were verified during weekly supervision meetings. Attendance over the first 30 intervention sessions was used to create retention patterns.

Demographic Variables

A socio-demographic information form completed by the parents provided information about: *race/ethnicity* (Hispanic or African American), parent's *current marital status* (married or living with someone vs. not), *number of persons living in the home*, *parent educational attainment* (highest grade completed), and *annual household income*.

Child-Level Variables

Five child-level variables were included in the study: *sex* of the adolescent, *social competence*, *aggression*, *academic competence*, and *adolescent disability*. Parents' perception of child-level variables were used in this study because it is parents' perceptions of their child's functioning, even more than actual child functioning, that is likely to motivate parent attendance. *Social competence* was created as the composite variable of two parental report scales: the popularity subscale of the Interpersonal Competence Scale (Cairns, Leung, Gest, & Cairns, 1995; 3 items) and the competence in peer relationships from the Adolescent Competence Scale (Coatsworth, 1992; 4 items). Alpha reliability for this seven item composite scale was .72. *Adolescent aggression* was also the sum of two scales: the aggression scale from the Interpersonal Competence Scale (Cairns et al., 1995; 3 items), and the behavior problem scale from the Adolescent Competence Scale (Coatsworth, 1992; 4 items). Alpha reliability for this seven item composite scale was .83. *Academic competence* was indexed using a single parent-report scale of the Adolescent Competence Scale (Coatsworth, 1992; 5 items; $\alpha = .84$). *Adolescent disability* (1: disability and 0: no disability) was indexed by a single parental report item documenting whether the adolescent carried a diagnosis of a learning and/or emotional disability.

Family-Level Variables

Six family-level variables were included in this study, of which five were variable or composites created from the *CFS Pre-Intervention Screening Interview* (Center for Family Studies, 1996). *Barriers to participation* in the intervention were assessed with three questions

that asked parents to indicate the extent to which logistics or circumstances within the family's social environment would interfere with participation. Questions focused on issues of transportation, childcare, and work/financial problems. Parents rated the items on a 5-point Likert scale with 1 representing *no barrier* and 5 representing a *very significant barrier*. On each item the majority of parents indicated no barrier, so items were dichotomized to reflect 0: *no barrier* and 1: *barrier*. The three items were summed to form a single score ranging from 0-3. *Parental intentions and motivation to participate* was indexed using a summed composite of four ratings reflecting caregiver's expressed support for the program, perceptions of how beneficial the program would be, perceptions of how comfortable they would feel participating in the groups, and perceptions of how much effort they would make to attend group sessions despite other obligations. Each item was rated on a 5-point Likert scale. Alpha reliability for this composite scale was .65.

Perceived family stress was created as a three-item summed composite of caregivers' perceptions of the severity of their family's stress, screeners' perceptions of the severity of the family's stress and screeners' perceptions of the chronicity of the stress, all rated on 5-point scales. Alpha reliability for this composite was .66. *Family opposition* was a two-item composite of parents' ratings of how much opposition to the intervention they might confront from other family members and parents' ratings of how difficult it would be to participate if a family member did not want them to ($r = .55, p < .01$). *Family organization* was computed as the composite of two ratings that assessed the extent of family organization and order (e.g., parents coordinated family activities well, family had some reasonable expectation of a coordinated family schedule). The screener rated the degree of organization and order in the home during the screening interview, and what it would be like on "a typical day." The sixth family variable was a dichotomous indicator of whether *multiple caregivers attended* intervention sessions. A code of 1 was given if *only one* caregiver ever attended, while a code of 2 was given if *more than one* caregiver participated in the intervention.

RESULTS

Identifying Patterns of Retention

The software package *S-Plus* (MathSoft Inc., 2000) was used to empirically derive a pattern of missing attendance (with 'missing' signifying 'not present') for each case across the first 30 sessions of the intervention. Initial results produced 112 distinct patterns of attendance, considerably too many for meaningful analysis. Moreover, our chosen analytic approach (Discriminant Function Analysis) limited the number of patterns that could be examined concurrently. Thus, an alternative coding strategy was used to collapse across patterns. First, a cut-point of 60% was set to distinguish high versus low attendance for each half (15 sessions each) of the intervention. This cut point corresponds to the median number of sessions attended by participants in the first half of the Familias Unidas intervention and also corresponds roughly to the rates of parent participation in the Fast Track study (Orrell-Valente et al., 1999) and to the average number of sessions attended by families in the Linking the Interests of Families and Teachers (LIFT) intervention conducted by the Oregon Social Learning Center (Reid et al., 1999). Second, each family's attendance was coded and cross-tabulations for first half and second half scores were examined.

This coding scheme effectively classified participants into three broad retention pattern groups. Approximately one fifth of parents who enrolled in the intervention never attended a session ($n = 28$; 19.6%). These parents were classified as the *non-attender* group. In contrast, a large majority of the parents ($n = 115$) attended numerous sessions ($M = 16.6, SD 9$). Parents were categorized into two additional groups: (a) *consistent-high-attenders* ($n = 48$; 33.6%), those parents with high levels of attendance (>60%) across both halves of the intervention, and

(b) *variable-attenders* ($n = 67$; 46.9%), parents whose attendance was inconsistent across the two halves.

In an effort to understand variations within the variable-attender group, subgroup analyses were conducted. The variable-attender group was segmented into three subgroups by using an additional cutoff point, *very low* attendance (indicated by attendance at <30% of the sessions during the first or second 15 sessions of the intervention). The subgroups included: (a) *dropouts* ($n = 23$; 37.1%); parents with *low* first half attendance who *never* attended during the second half; (b) *variable-low-attenders* ($n = 17$; 27.4%); parents with *low* first half and *very low* second half attendance; (c) *variable-high-attenders* ($n = 22$; 35.5%); parents with *high* first half and *low* second half attendance.⁴

Discriminating Retention Pattern Groups

Given the study's modest sample size, we examined how the socio-demographic, child, and family variables predicted retention pattern groups in separate Discriminant Function Analyses (DFA). We also conducted separate analyses for the broad attendance pattern groups and for the variable attendance subgroups. All analyses were conducted using SPSS version 11.0. Prior to conducting analyses, missing data were imputed using the expectation-maximization method. Six variables contained missing data. Four variables were missing one case (0.7%; parental educational attainment, annual household income, family organization), one variable was missing 7 cases (5%; barriers) and one variable was missing 20 cases (14%; perceived family stress).

Inter-Correlations—Pearson correlations among all predictor variables were examined to check for multi-collinearity.⁵ On average, predictor variables were only moderately correlated, ranging in magnitude from $r = .00$ to $r = .39$. The strongest correlations were between current marital status and annual household income ($r = .39$, $p < .005$), between race/ethnicity and current marital status ($r = .32$, $p < .005$), and between perceived family stress and family organization ($r = .25$, $p < .005$). None of the correlations appeared large enough to cause concern, therefore, all variables were included in the analyses.

Classifying Broad Attendance Patterns—Given unequal group size, DFAs were conducted accounting for prior probabilities of group membership. Results from the series of DFAs to classify participants into the non-attender, variable-attender, and consistent-high-attender groups indicated two significant discriminant functions for the socio-demographic predictors, but none for the child and family level variables. For the socio-demographic variables, the two functions combined indicated a highly reliable relationship between retention pattern groups and socio-demographic predictors, $\chi^2(10, N = 143) = 36.5$, $p < .001$. Even after removal of the first function, there was still a reliable relationship between groups and predictors as indicated by the $\chi^2(4, N = 143) = 13.6$, $p < .01$. The relative proportion of the between group variability accounted for by the discriminant functions was 63.5 and 36.5%, respectively.

Classification results indicated that the model did an adequate job of predicting attendance patterns of the variable-attenders and the consistent-high-attenders (67 and 48%, respectively). Distinguishing the non-attenders from the variable-attenders was the most difficult. The majority of non-attenders who were misclassified were placed in the variable-attenders group. Overall, 51% of the original cases were correctly classified. This is a reasonable improvement

⁴Five of the *variable-attenders* did not have intervention attendance patterns that placed them in any of the subgroups (e.g., some had *low* attendance in the first half and *higher* attendance in the second half than in the first) and were therefore excluded from the subgroup analyses because they did not constitute a sufficient number to form an additional subgroup.

over the chance classification rate of 37.5% given three classification groups and a modest sample size.

The loading matrix of pooled within-group correlations between the discriminating variables and the standardized canonical discriminant functions is shown in Table I. The first function maximally separated the non-attender group from the consistent-high-attender group, whereas the second function separated the variable-attender group from both the non-attender group and the consistent-high-attender group. The loading matrix suggests that the best demographic predictors for distinguishing between the non-attenders and the consistent-high-attenders (first function) are race/ethnicity and annual household income. The loading matrix for the second function, which best separated the variable-attender group from the other two groups, suggests that number of persons living in the home and current marital status are also good demographic predictors for distinguishing between broad retention pattern groups. Chi-square tests of cross-tabulations and one-way ANOVA with Tukey post-hoc comparisons (see Table II) revealed significant patterns of differences among the broad attendance pattern groups on these four demographic variables, as well as on adolescent disability and parental intentions/motivation to participate.

Parents in the non-attender group reported a higher number of persons living in the home and higher rates of adolescent emotional/learning disability as compared to both variable-attenders and consistent-high-attenders. Consistent-high-attenders were much more likely to be Hispanic than African American compared to either of the other two groups. Consistent-high-attenders also reported *higher* levels of current annual household income than parents who were non-attenders. The variable-attender group reported marginally lower rates of current marital status as married/cohabiting than consistent-high-attenders and marginally higher levels of parental intentions/motivation to participate than non-attenders.

Classifying Variable Attendance Subgroups—Discriminant Function Analyses conducted for the variable-attender subgroups (dropouts vs. variable-low-attenders vs. variable-high-attenders) using the same socio-demographic, child, and family predictor variables resulted in one significant discriminant function at the family level, $\chi^2(12, N 32.3, p < .001$. This function accounted for 98.4% of the between-group variability and maximally separated the dropout group from the variable-high-attender group, with variable-low-attenders falling between these two groups. Of the six predictor variables, multiple caregivers attending the intervention and barriers to participation were the largest contributors to the discriminant function. Multiple caregivers attending the intervention and barriers to participation had pooled within-groups correlation with the standardized canonical discriminant function of .66 and -.48, respectively.

Classification results indicated that the model did a good job of correctly classifying the attendance patterns of parents in the dropout and variable-high-attender groups (87 and 73%, respectively). Distinguishing the variable-low-attenders from the other two subgroups was the most difficult, as the majority of variable-low-attenders were misclassified into the dropout or variable-high-attenders groups. Overall, 60% of the original cases were correctly classified. This is a substantial improvement over the chance classification rate of 34%.

As shown in Table III, mean level and/or rate differences were found for the family-level variables of multiple caregivers attending the intervention, barriers to participation, and family organization, and for the socio-demographic variables of parental educational attainment, and annual household income, but not for any child-level variables. Families in the dropout group had lower levels of family organization, higher levels of barriers to participation, and lower levels of parent educational attainment than the variable-high-attenders. Parents in the variable-low-attenders group had higher rates of multiple caregivers attending the intervention than

dropouts but marginally lower rates than variable-high-attenders. Variable-low-attenders also had marginally lower levels of annual household income than the variable-high-attenders group.

DISCUSSION

As family-focused preventive interventions begin to be disseminated widely to the general public, attention to issues of engagement and retention will be at the fore. Front-line prevention staff will need guidance regarding who is likely to drop out, and when and how to intervene to increase retention. Building a knowledge base to assist intervention staff in making these decisions is likely to increase the overall effectiveness of family-centered preventive interventions. The waxing and waning of family intervention attendance may not be fully reflected in binary classification schemes commonly used to study retention (e.g., dropout vs. completer) and studies may need to explore alternative methods of classification. The current study applied a person-oriented approach to explore variability in patterns of retention in a family-focused preventive intervention for minority families and then examined demographic, family, and child correlates of these patterns.

Patterns of Retention

Results of this study reflect the value of a person-oriented, or pattern, approach to examining retention. Analyses of attendance data from the first 30 sessions of the Familias Unidas/SEPI intervention suggested that participants could be classified into three broad groups: *non-attenders*, *consistent high-attenders*, and *variable-attenders*. Further analyses indicated that the variable-attenders group could be classified into three subgroups: (a) *dropouts*, who showed low attendance in the first half and no attendance in the second, (b) *variable-low-attenders*, who showed low attendance rates in the first half of the program and less in the second, and (c) *variable-high-attenders*, who showed high attendance in the first half and low in the second. These patterns suggest that the variability in retention can be accounted for in more intricate and meaningful ways than binary classification of dropout vs. completer.

Our data may be most informative with respect to the variable-attender pattern. Given the larger number of sessions in this intervention, classifying participants accurately into dropout vs. completers would have been very difficult and would not have represented the variability in attendance across sessions. Likewise, computing participation rate proportion scores would have blurred these classifications and yielded different results. We found substantial overlap in participation rate proportion scores across groups. For example, many dropouts showed identical or comparable scores to participants in the variable-low-attenders group. This subgroup of dropouts attended a high proportion of sessions during the first half of the intervention and none during the second. It is not clear whether getting comparable doses of the intervention but getting all of it early and none later, or getting a little bit over a longer period of time is better for intervention effectiveness.

It might be that if participants have a positive alliance with the facilitator and other members of the group and can be tutored on any missed content, then they gain from both content and process of the intervention and partial attendance over longer periods of time might produce better effects. In contrast, sporadic attendance of the variable-attender group might be disruptive to aspects of the group processes (e.g., cohesion) and could undermine effects for all participants in that intervention group. In a multi-session and multidimensional intervention such as Familias Unidas, families work on many parenting, family, and other prevention-related issues and a substantial amount of information is conveyed over many sessions. With the exception of a few interventions (Hogue & Liddle, 1999; Sanders et al., 2002), most family-centered prevention efforts do not tailor their intervention activities to the specific needs of individual participants, rather, all information is intended to be delivered to all participants. It

may be that some parents in the variable-attender groups are savvy consumers and are electing to attend specific sessions that address issues that are most important to them. In this case, variable-attenders might show intervention effects equal to consistent-high-attenders, at least on certain variables that reflect their specific parenting/family issues. Investigations linking patterns of attendance, beyond dosage, to intervention outcomes can help answer these questions.

Another important consideration when examining these types of patterns is the timing of entry into the intervention. While exit from the intervention is obviously an important aspect to consider when assessing effectiveness, it may be that timing of entry and exit may interact to produce differential effects. Entry into the intervention prior to some life event or life change, rather than after the event, may distinguish good from poor effects, even among dropouts. For example, Honig and Morin (2001) found that pregnant teens who entered a parenting program prior to birth of their child but later dropped out, showed lower rates of subsequent child abuse compared to teens who also dropped out, but who entered the program *after* their child was born. Our study did not account for such life events, but future studies of family-focused interventions may benefit from attention to events in the parents' or adolescents' lives (e.g., substance use onset, arrest) as moderators of retention patterns and the relations between attendance and outcomes.

Correlates of Retention Patterns

A number of socio-demographic, family, and child level predictors were associated with our retention pattern groups and some important differences were evident across analyses of the broad attendance groups and the variable-attender subgroups. Socio-demographic variables showed the greatest ability to discriminate among the three broad retention patterns. Non-attenders had more people living in their homes, lower household income, and a greater likelihood to have a child with a disability. Interestingly, this group also showed relatively high motivation and intention to participate. It may be that the initial interest in the project reflected in their motivation score also reflects their perceived need for the intervention due to their child's disability. However, given the life demands of managing a large family with little income, participating in the intervention could not always be a priority for them. Many of these findings are consistent with other studies that have found important differences on race/ethnicity or income for engagement (Dumka et al., 1997; McKay et al., 1996; Perrino et al., 2001; Rohrbach et al., 1994).

Race/ethnicity also was an important variable for differentiating the retention groups. African Americans were more likely to be classified as non-attenders (27.7%) or variable-attenders (61%) than Hispanics (15.6 and 39.6%). In contrast Hispanic families were more likely to be in the consistent-high-attenders classification (44.8% vs. 10.6%). Orrell-Valente and colleagues (1999) indicate that ethnicity might be most important as an indicator of the match between participant and facilitator. Results from our study, in which participants were matched on race/ethnicity with both the facilitator and assessors, suggest that ethnicity may also operate as a barrier to participation and retention in ways other than through matching. Readers are cautioned against simplistic explanations and should note that this study's results are only descriptive and do not investigate the mechanisms by which race/ethnicity contributes to retention. Future studies designed to test theoretically-derived hypotheses will be most informative for understanding the processes linking race/ethnicity and intervention retention.

Relatively few studies have mixed samples with multiple ethnic groups participating to investigate such questions, but for those that do, a first step would be to move beyond description to investigate whether demographic, family, and child correlates show differential relations with retention across racial/ethnic groups. Our own work has begun to examine whether variables differentially predict retention for Hispanic and African American families

(Coatsworth, Duncan, Pantin, & Pantin Szapocznik, in press). Second, future studies may also help to clarify what it is about the race/ethnicity variable that relates to participation. It is possible that these racial differences represent value differences in the acceptability of interventions or intervention activities or reflect a warranted cultural mistrust of researchers/professionals (see Freimuth et al., 2001). Understanding why these differences emerge may also help us understand how best to address ethnicity in engaging and retaining participants in family based preventive interventions.

In contrast to the findings for the broad attendance patterns, family level variables were the best predictors of the variable-attender subgroups. In those analyses, family organization, barriers to participation, and parent educational attainment were the strongest discriminating factors. Families that dropped out showed lower education, lower organization, and more barriers. Although these families were interested and motivated enough to come to some of the sessions, the level of disorganization and number of life barriers appeared to overtake the importance of participating in the intervention. Elsewhere we have demonstrated that family systems level variables such as family organization can have important effects on engagement into an intervention (Perrino et al., 2001). It also appears that these factors may influence retention. Even in preventive interventions, some families may require greater levels of service early in the intervention just to keep them attending.

Parental educational attainment also emerged as an important predictor for the variable attender subgroups. Meeting the needs of low literacy families is often a special intervention consideration when working with high-risk populations including low SES immigrant families. Compared to many family-based preventive interventions, the Familias Unidas/SEPI intervention included relatively few written materials or home assignments (Pantin, Schwartz, et al., 2003), yet education still emerged as an important variable. Literacy issues were attended to in the intervention as facilitators were trained and supervised to use simple language to convey complex concepts. Literacy may be even more of an issue for interventions that include a great deal of reading or "homework" materials. Some parenting resources have been created specifically for low literacy populations and are available to use in interventions (cf., Honig, 1982). Use of such materials may improve retention.

An important observation about the three subgroups of variable-attenders is that all showed substantial reduction in attendance in the second half of the intervention. These three groups, the variable high-attenders, variable-low attenders, and dropouts demonstrated low, very-low, or no attendance respectively, in the second half of the intervention. One clear message this gives to interventionists is that they must come up with creative ways to try to retain families in the intervention. Focusing on individual family systems and addressing families' needs quickly may help them see the relevance of the intervention, attend the sessions, and "take up" the messages delivered about issues beyond the family. Some interventions are designed to provide individual instruction to families (Hogue & Liddle, 1999), which could be helpful to families' application of skills and for retention. Providing one-on-one follow-up either in person or by phone to those participants who miss sessions is labor intensive, but can help convey important intervention content, help families problem solve barriers to participation, and help maintain interpersonal connections between the absent participant and the facilitator or other group members (Reid et al., 1999). Participant incentives are also an important feature of many effective family-based interventions (Kumpfer, Alvarado, Smith, & Bellamy, 2002). Cash payment has been shown to be an effective incentive for engaging participants into an intervention study (Guyl, Spoth, & Redmond, 2003). While our intervention did include a \$10 incentive for each session, it may be that creative use of alternative, gift incentives, and treats, rather than cash, may be more effective in retaining participants (Katz et al., 2001).

These results also suggest an important intervention strategy of communicating main points and introducing crucial information early in an intervention so that those participants who drop out will still receive some of the intervention's primary content. Early sessions could provide general overviews while later sessions give more detailed information, thereby allowing dropouts to be exposed to important ideas and techniques they would otherwise have missed.

Interestingly, for no families in the dropout group did multiple family members attend the sessions. In contrast, approximately 24% of the variable-low-attender and 50% of the variable-high-attender families had multiple family members attend sessions. Reviewing the patterns across sessions indicated that many of the families with multiple attendees were trading off, with one parent attending some sessions and the other attending other sessions. Multiple caregivers may then discuss the content of the session and share the activities with the other family caregivers. While many family-centered programs target families or both parents, in reality, it is often that only one caregiver is involved in any of the intervention sessions. It is not clear if having multiple caregivers attend the same or different sessions has an additive effect on intervention outcomes, but future studies may address this issue.

Limitations

Several limitations of the current study warrant discussion. First, the study was conducted with a relatively small sample of ethnic minority parents. The small sample size constrained our ability to investigate more patterns than we did. The initial number of 112 unique patterns of missing data suggests that it would have been possible to study more patterns with a larger sample to accommodate our analysis. We believe that in other studies of this kind, similar groups are likely to emerge. Non-attenders and consistent-high-attenders are patterns likely to be common to many interventions, while the specific variable patterns might show greater differences across studies. Clearly, replication and extension is needed. Replication is also needed in extending this work to other populations. For example, our Hispanic participants represent many different ethnic groups (Cuban, Nicaraguan, Salvadorian), but it is not clear how these patterns might differ for Mexican Americans. Indeed, with our modest sample size, it was not possible to conduct analyses to examine within-group differences among Hispanic subgroups. These Hispanic subgroups, however, may differ on important historical and cultural variables and also in terms of acculturation experiences to the socio-political context of this study's metropolitan area. These ethnic subgroup specific factors, in turn, may influence attendance patterns. Future research with larger samples should investigate possible differences across Hispanic subgroups.

Another limitation is the static nature of the correlates. Retaining participants in interventions is likely to be a complex, dynamic interaction between individual, contextual, and interpersonal variables. This study has identified several variables that discriminate between retention groups, but does not identify the mechanisms by which they might operate. Likewise, we have not examined whether interpersonal processes that occur between the participant and the facilitator or other participants, or that occur between two or more other participants predict retention. Like in treatment interventions, it may be that participants drop out of preventive interventions because they do not form a strong, balanced alliance with the group leader or other members of the group (Brown & O'Leary, 2000). To our knowledge only one study has investigated the relations between intervention process (i.e., trainer's behavior) and retention, and that study focused on trainer's interactions with early elementary school disruptive boys (Charlebois, Vitaro, Normandeau, Brendgen, & Rondeau, 2004). Future studies are needed to investigate these dynamic intervention processes and mechanisms related to retention in parent and family-focused interventions as well.

This study focused on sets of variables from three broad domains that had demonstrated some discriminating power in empirical studies. It was not intended to identify all discriminating

variables. Extending these studies to other classes of variables may be equally important. Factors that predict if a person will enter an intervention may or may not also predict if that person will remain in the intervention to completion. Our data suggest that some variables may predict both engagement and retention, while others are better predictors of only one. Other classes of variables that are likely contributors to retention include participant satisfaction and perceptions of important program elements (Fox & Gottfredson, 2003) and intervention process variables. Although factors such as parents' stress level, education level, and perceptions of their children may all influence retention, what happens as part of the in-session clinical processes will also influence participants' motivation and inclination to stay in the intervention.

Despite these acknowledged limitations, the current study adds to the growing literature on correlates of engagement and retention in preventive interventions (Spath & Redmond, 2000). More studies like this one are needed to provide foundational knowledge to help front line prevention staff identify those participants who are likely to show retention problems and to help program designers develop intervention strategies for improving retention rates. New engagement and retention strategies could be manualized, integrated into existing interventions and tested empirically, as has been done in the family-therapy field (Coatsworth, Santisteban, McBride, & Szapocznik, 2001; Santisteban et al., 1996; Szapocznik et al., 1988). Such empirical tests are likely to accelerate the already rapid growth of family-centered prevention science.

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Table I

Structure Matrix for the Discriminant Function Analysis of Nonattenders, Consistent-high-attenders, and Variable-attenders for Demographic Variables (N = 143)

Variables	Discriminant	
	Function 1	Function 2
Race/ethnicity	.733 ^a	.474
Annual household income	.581 ^a	-.069
Number of persons living in the home	-.409	.519 ^a
Current marital status	.265	.508 ^a
Parent education attainment	.059	-.433 ^a

Note. Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions. Variables ordered by absolute size of correlation within function.

^a Largest absolute correlation between each variable and any discriminant function. Race/Ethnicity: Hispanic: 1; African American: 0. Current Marital Status: married/cohabiting: 1; not married/cohabiting: 0.

Table II
Mean/Rate Comparisons across Broad Attendance Patterns

Variables	(1) Non-attenders	(2) Variable attenders	(3) Consistent high-attenders
	Rate or M(SD)	Rate or M(SD)	Rate or M(SD)
Race/ethnicity (percent Hispanic)	53.6% ^{*3}	56.7% ^{*3}	89.6% ^{**1,2}
Annual household income	3.07 (1.74) ^{*3}	3.94 (2.56)	4.69 (2.32) ^{*1}
Number of persons living in the home	7 (2.51) ^{*2,3}	5.66 (2.03) ^{*1}	5.73 (2.21) ^{*1}
Current marital status (percent married)	60.7%	49.3% ^{*3}	70.8% ^{**2}
Adolescent disability (percent ED/LD)	35.7% ^{*2,3}	11.9% ^{*1}	12.5% ^{*1}
Parental intentions/motivation to participate	18.48 (1.11) ^{*2,3}	18.62 (1.36) ^{*1}	18.03 (1.7) ^{*1}

Note: Superscripts indicate group numbers where the difference occurs, Annual Household Income: 3 = \$10-15 K; 4 = \$15-20 K; 5 = \$20-25 K.

*
p < .05 level;

**
p < .01 level;

[†]
p < .10.

Table III.
Mean/Rate Comparisons across Variable Attendance Subgroups

Variables	(1) Dropouts	(2) Variable low-attenders	(3) Variable high-attenders
	Rate or M(SD)	Rate or M(SD)	Rate or M(SD)
Family organization	15.46 (3.4) ^{*3}	16.45 (2.91)	17.78 (2.05) ^{*1}
Barriers to participation	1.04 (.71) ^{**3}	.80 (.53)	.48 (.50) ^{**1}
Multiple caregivers attending the intervention	0% ^{*2, **3}	23.5% ^{*1}	7 ₃ 50% ^{**1, †2}
Parent education attainment	10.96 (2.53) ^{*3}	12.53 (2.27)	13.23 (3.07) ^{*1}
Annual household income	3.70 (2.75)	3.18 (2.24) ^{†3}	5.09 (2.41) ^{†2}

Note: Superscripts indicate group numbers where the difference occurs. Annual Household Income: 3 = \$10-15 K; 4 = \$15-20 K; 5 = \$20-25 K.

*
p < .05 level;

**
p < .01 level;

†
p < .10.