

## RESEARCH ARTICLE

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### Participation in Early Childhood Home Visiting: The Role of Family, Ethnic, and Community Factors

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Participant ethnicity, family risks, resources, and community characteristics influence participation in many different types of early childhood home visiting programs. However, few studies have examined their influence on family participation in literacy-focused home visiting efforts. A sample of 539 families enrolled in one of 25 Parent Child Home Program (PCHP) sites in Massachusetts was tracked from program entry to exit. Families were less likely to complete programs if they were non-Latino and experienced more family educational risks; the ESL rate in their community of residence was predictive of program completion for Latino families. Length of participation was predicted by ethnicity, child age at entry, family involvement in formal school settings, and the graduation rate in the community where the family resides. Implications of study findings for decreasing barriers to program completion and developing long-term associations between home visiting programs and families are considered.

*Keywords:* home visiting, community, Latino, risk factors, literacy.

Home visiting programs are designed to reduce barriers to program participation for families with young children by bringing interventions directly to them. However, studies examining a variety of home visiting programs including Healthy Families, Parents As Teachers (PAT), and the Nurse Home Visitation Program suggest that drop-out rates for programs remain an issue of concern. Program completion rates hover between 20 - 76% depending on the subgroups examined (Gromby, Culcross, & Berman, 1999; McCurdy, Gannon, & Daro, 2003; Middlemiss

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& McGuigan, 2005). Completion rates decrease if we consider the 11 - 22% of families that agree to participate in program services but never do (McCurdy et al., 2006; Wagner et al., 2003).

Limited participation of families in early childhood home visiting programs jeopardizes program implementation, limits the conclusions that can be drawn from programmatic research and ultimately represents costs expended by programs for which benefits will not be fully achieved. Participation in programs has been conceptualized in a variety of different ways. The number of visits received by a family, the frequency of visits, and the families' total duration of involvement or participation in program services have been used (McCurdy et al., 2003; Spellman et al., 2005; Wagner et al., 2003). Other studies have made determinations about the nature of families' participation based on the program's requirements, specifying service lengths which are indicative of participation or persistence in the program. Some programs use a set time period for participation (such as over 90 days) (McGuigan et al., 2003ab) or examine whether a child remains in the program until they reach a certain age (Navaie-Waliser et al., 2000; Wagner et al., 2003).

Kahn and Moore's (2010) review of the research finds that high service intensity is important to service outcomes in early childhood home visiting programs focused on parenting, child development, and providing educational support. Research on programs such as Parents as Teachers (PAT) indicates that the number of visits received by families is important to program success (Wagner & Clayton, 1999; Zigler, Pfannenstiel, & Seitz, 2008). Further, the duration of home visiting has been found to have a direct effect on parents' understanding of early childhood development and an indirect effect on school readiness (Schull & Anderson, 2008). Taken together, the number of visits received by families and their length of enrollment in programs are factors important to family success in home visiting. Greater attention to the study of family participation using these two indices can provide data that can be used to strengthen early childhood interventions by identifying barriers to service provision and the supports needed to sustain vulnerable families.

It is also important to examine differences in family participation in home visiting by families' ethnic background to ensure program practices and policies optimize participation for diverse families. Of particular interest is how to best support the large influx of Latino families in many communities. The number of Latino children in the U.S. is growing, with Latinos under 18 outnumbering non-Latino whites by 11.6% (U.S. Census, 2006). There is an increased awareness of the diversity of Latinos in the United States. Population-based data suggests that 55 to 60% of Latinos are native-born and 40 to 45% foreign-born (Ramirez & de la Cruz, 2002; Tienda & Mitchell, 2006). Of Latinos in the U.S. 75% are first or second generation immigrants (Tienda & Mitchell, 2006). Data from the National Survey of Early Childhood Health (NSECH) shows that both Spanish and English speaking Latino parents are less likely to read to their children daily than White or Black parents (Kuo, Franke, Regalado, & Halfon, 2004), placing their children's literacy and future educational success at risk.

The purpose of this review of the literature is to use an ecological systems perspective (Bronfenbrenner, 1979) to understand microsystem factors important to family participation in home visiting. The goal of the present study is to understand how family educational risks, resources, and community factors influence family participation in early childhood home visiting programs for Latino and non-Latino families. By using two measures of family participation, program completion and length of participation, this study will assist early childhood

professionals in understanding family barriers to fulfilling program requirements and developing long-term associations with programs and services in their community.

## Latino Families and Home Visiting

Research on home visiting indicates that Latino families, especially those who are newer to the U.S. and less acculturated, are more receptive to home visiting, and more likely to achieve benefits from programs (Daro et al., 2007; Daro, McCurdy, Falconnier, & Stojanovic, 2003; McCurdy et al., 2006; McCurdy et al., 2003; McGuigan, Katzev & Pratt, 2003ab; Middlemiss & McGuigan, 2005; Wagner & Clayton, 1999). Differences in Latino families' rates of program completion and length of participation have been attributed to cultural differences in familism, extended family networks, and permeability (Landale, Oropesa, & Bradatan, 2006; Middlemiss & McGuigan, 2005). Middlemiss and McGuigan (2005) suggest that Latino families have higher permeability or are more open to inviting those outside into the family because they have a strong family orientation, emphasizing the group over the individual. This results in Latino families relying on support from larger, extended family networks (Coatsworth et al., 2006). While it has been found that familism or a strong family orientation decreases across generations (Landale et al., 2006), families who retain more traditional views may be more open to home visiting interventions.

Research examining a variety of home visiting models suggests besides ethnicity, there are several microsystem factors which may be linked to family success in home visiting programs. Among the factors to be reviewed here are family educational risks, family literacy skills and resources, and the characteristics of the community where families reside.

*Family educational risks and resources.* Studies of participants in the Nurse Home Visitation Program show that families who enter programs with less need and stronger personal skills are least likely to benefit and most likely to leave programs prematurely (Olds et al., 1999; Olds et al., 2004). In studies of Healthy Families Programs, research has found that parents with more outward displays of distress are likely to receive more assistance from home visitors who spend more time in visits with them (Sharp, Ispa, Thornburg, & Lane, 2003). However, it is important to consider that home visiting programs vary in terms of the age of the population served, service goals, service frequency, and intensity of programs (Astuto & Allen, 2009; Kahn & Moore, 2010). Newborn and infant home visiting programs such as Healthy Families and health-focused interventions such as the Nurse Home Visitation Program provide insight into the role that family risks play in family participation in programs. However, the research cited here conceptualizes family risk in terms of parents' psychological health and access to social support (Duggan et al., 1999; Olds et al., 1999; Olds et al., 2004).

Parental literacy skills may be an important aspect of parental functioning to assess. Latino families have been shown to engage longer in home visiting programs such as Healthy Families (Daro et al., 2007; Daro et al., 2003; McCurdy et al., 2006; McCurdy et al., 2003; McGuigan et al., 2003ab; Middlemiss & McGuigan, 2005; Wagner & Clayton, 1999). However, there are marked differences between this effort and other early childhood interventions. For example, the program's emphasis is on making prenatal and early postnatal connections with high-risk families, preventing child maltreatment, targeting and screening all vulnerable families in their program's catchment area, and providing a mix of case management, referral and supportive services in the home through weekly visits. The question remains whether the

conceptual model derived to explain program completion and length of participation from an examination of this type of home visiting program applies to home visiting efforts targeted to older children, emphasizing the promotion of school readiness, and operated on a statewide-level.

Parental educational attainment, poverty, and being a second language learner may be highly correlated with success in literacy-focused home visiting programs. Literacy-focused interventions have been more successful in maintaining non-Latino families. Latino families experience greater literacy risks, with a poverty rate that ranges from 15% to 26%; 30% to 50% have no high school degree, with these rates varying by families' country of origin (Ramirez & de la Cruz, 2002). Lack of education and limited competency in English are factors which may limit this group's economic well-being and ability to support their children's literacy development. Studies of literacy-focused home visiting programs have found that young, less educated Latinos are less likely to persist in home visiting programs (Wagner et al., 2003). This research suggests that family resources, like parents' literacy skills, may be important in determining whether families are able to complete the requirements of a literacy-focused home visiting program.

Navaie-Waliser et al. (2000) have found that family ethnic background, but not family resources such as overall social support needs, informal support resources, self-esteem, stress, or depression, differentiate duration of service involvement. However, it has also been found that families with more support around their involvement in the program or within their home are more apt to enroll in and receive home visiting services (McCurdy et al., 2006). Home visiting programs have an implicit, if not explicit, goal of improving the support system of families. However, ethnic or culturally-based views about the role of "outsiders" are also important to consider.

It is also likely that the larger social networks of Latino families could serve as a deterrent to program participation. The presence of many family members may serve as a barrier to program participation, leaving families with less time and the potential for more conflict around their participation in an activity outside of the family. Hence, it is crucial to examine how resources such as external family support networks influence family participation in programs.

*Community influences.* Data on Healthy Families model home visiting programs suggest community health status determines program effects and experiences (Daro et al. 2007; McGuigan et al., 2003ab). McGuigan et al. (2003a) found that isolated parents and those in communities with poorer community health are less likely to engage in home visiting. In contrast, those in communities with higher rate of community violence receive more home visits (McGuigan et al., 2003b). Further, Daro et al. have found that community distress (rates of unemployment, public assistance, low income, low education, and single parenthood) predicts the number of home visits families receive, over and above the contributions of personal characteristics and program experiences. They found that families in communities with greater social and economic distress receive a greater number of home visits. For Latino families participating in literacy-focused home visiting program, the characteristics of the community, particularly its socioeconomic and literacy health, may be important in determining program participation. Stamps and Bohon (2006) note that Latino immigrants face many community-based risks to their social adaptation including discrimination, negative stereotypes based on race, and hostility due to the role they play in the competition for jobs and resource demands in a community.

*Summary.* There are limits to the information we have regarding factors associated with program completion and length of participation in early childhood home visiting programs which focus on literacy. Most research has examined newborn and infant programs such as Healthy Families and Parents as Teachers (PAT). Less is known about efforts that begin later, such as those designed to be used during the toddler and preschool period to promote school readiness. Factors important to program completion rates and the duration of time a family chooses to stay associated with a home visiting program may differ. For example, perhaps family educational risks and resources such as parental education or literacy levels are more predictive of an individual's ability to complete program requirements. However, ethnicity, which may be related to a set of cultural values about external supports, factor into how long a family stays engaged in a program. Community factors, including the demographic profile of the community where the program is located and the family resides, also contribute to family participation and programmatic outcomes (Coulton, 1995). Communities challenged by poverty, low rates of high school completion, and high numbers of English Language Learners (ELLs) may create barriers to program completion for families. Conversely, residing in a distressed community could serve as a means further motivate families to stay engaged with programs so as to help ensure their child's future educational and occupational success in the face of adversity.

### The Parent-Child Home Program: A Model for Literacy-Focused Early Childhood Home Visiting

One early childhood home visiting program which focuses exclusively on literacy development is the Parent-Child Home Program (PCHP). Founded in 1965 by Phyllis Levenstein and originally called the Mother-Child Home Program (see Levenstein, 1988; Levenstein, & Levenstein, 2008) the primary goal of PCHP is to strengthen verbal interaction and educational play between parents and their young children through 30 minute long, bi-weekly home visits. During each week of visits families are provided with a different educational toy or book which the family keeps. During the first visit of the week, home visitors introduce a toy or book to the parent and child, modeling teaching and interactive behavior that is stimulating. The second visit during the week is focused on reviewing what was presented during the first visit, reinforcing the concepts and strategies presented. The program is targeted to families with children who are deemed at an educational disadvantage due to poverty, lack of parental education, cultural or language barriers, or contextual factors such as being a single parent with more than one child or having an older child who receives special education services. Services typically start when children are between the ages of 18-30 months and continue for two program years until graduation.

Studies of PCHP indicate that the program has been successful in improving caregiver interaction (Gfellner, McLaren, & Metcalfe, 2008; McLaren, 1988), children's cognitive outcomes (Madden, Levenstein, & Levenstein, 1976; Madden, O'Hara, & Levenstein, 1984), skills at school entry (Levenstein, Levenstein, & Oliver, 2002) and long-term educational attainment (Levenstein, Levenstein, Shiminski, & Stolzberg, 1998). Children who complete PCHP look similar to their less disadvantaged peers during the early years of their education, suggesting that PCHP helps to level the educational playing field for low-income, ethnically-diverse children at school entry (Allen, Sethi, & Astuto, 2007; Levenstein et al., 2002).

## The Current Study

The current study examines whether trends in program completion and length of participation found in studies of prenatal and infant home visiting programs, which target child maltreatment, also apply to early childhood home visiting programs with a focus on school readiness and children's education outcomes. The goal of the present study is to examine factors associated with program completion and length of participation in a statewide, multi-site implementation of PCHP. Specific questions include the following:

1. What are the differences in the characteristics of Latino and non-Latino families enrolled in a literacy-focused home visiting program?
2. What predicts program completion and length of stay in early childhood home visiting for Latino versus non-Latino families? In particular, what influence do family educational risks, resources, and community characteristics have on families' ability to complete program requirements and remain enrolled in programs over time?

## METHOD

### Participants

Families representing 25 state-funded Parent Child Home Programs (PCHP) were tracked from program entry to exit. State-funded programs in Massachusetts were designed to serve 14 families each. Some programs had additional funding resources and supported larger programs (22 - 35 families). Data collection began in September 2003 and continued until June 2006. Of the 870 families who entered the program over those two years, data were collected by programs on 604 families who entered the program between September and November of each year (69% of all families enrolled). Information on 65 families was not included in analyses due to incomplete data or because programs deviated from the timetable for administration of research measures, yielding a total sample size of 539 families with complete intake and service data.

The majority of the participants enrolled in the program were mothers and their children (95.2%). Demographic characteristics of the sample appear in Table 1. As noted in the table, family income tended to be low in this sample with 57.0% with incomes below \$20,000 and 38.7% with incomes ranging from \$20,000-59,000. As reference, the state median income in Massachusetts was \$51, 955 for the year data collection took place. The sample was diverse in terms of their ethnic background with 73% identifying themselves as non-Latino (34.3% Caucasian, 38.7% non-Caucasian/non-Latino including 6.3% African-American, 5.6% Asian-American, 10.6% Mixed Ethnicity, and 16.2% Other) and 27.0% Latino. Latino families enrolled in PCHP in Massachusetts were diverse. An in-depth study of Latino families enrolled in PCHP during from 2004-2006 (see Williams, 2010) found that 46.2% of Latino families could be considered non- or established immigrants from the U.S., Puerto Rico, and Mexico and 53.8% were new Latino immigrants originating from the Dominican Republic, Guatemala, El Salvador, and Brazil (see Tienda & Mitchell, 2006 for further information on established, non-established, and new Latino immigrants).

TABLE 1  
Demographic Profile of PCHP Participants in Massachusetts ( $n = 537-539$ )

Participant Characteristics	Percentage/Mean	
Family Income	Low (under \$20K)	57.00%
	Moderate (\$20 - 59,999)	38.70%
	High (over \$60K)	4.30%
Family Income	Single Parent	36.40%
Child Gender	Male	49.40%
Age at Entry for Child (Years)		2.43 (0.79)
Maternal Education	No High School Degree	28.20%
	High School/Vocational Degree	40.80%
	Some College	31.00%
Language Preference for Surveys	Spanish	17.10%
Ethnicity	Latino	27.00%
	Non-Latino	73.00%
Community of Residence (CR)	Not Graduating from High School	14.80%
Risks	Speak Another Language	20.50%
	Families Below Poverty Level	8.30%
	Program Completion Rate	61.60%
Family Engagement in PCHP	Length of Engagement (Months)	14.37 ( $SD = 7.99$ )

Families served by PCHP in Massachusetts resided in areas throughout the state, with 42.6% in urban, 45.4% in suburban and 12.1% in rural areas. The average length of program participation was 14.37 months ( $SD = 7.99$ ). Families who completed the requirements of the program were enrolled an average of 17.94 ( $SD = 6.52$ ) months while those who dropped-out participated an average of 8.44 ( $SD = 6.53$ ) months,  $t(537) = 16.421$ ,  $p < .001$ .

## Procedures

Data on individual families were gathered during home visits. Programs were required to complete research measures at an intake home visit with families during the first month of services, a 4-6 months follow-up, and at program exit (typically 20 months after entry if families did not leave the program prematurely).

## Independent Variables

*Family background information.* Information collected at program intake included the following: maternal/paternal education and work status, family income, family configuration, the family's ethnic or racial background, the language used when data were collected (Spanish or English), and the type of community in which the family resided (metropolitan area over 50,000, small city between 10,000-50,000 or small town of under 10,000). Child information such as gender, date of birth and the age of the child at program entry was also recorded.

Based on intake information, a family educational risk index was created for each family. Families were assigned 1 point for each of the following five family educational risk factors present: (1) having a very low income (below \$20,000), (2) having a family headed by a single-parent, (3) having a mother with less than a high school education, (4) having a father with less than a high school education, and (5) speaking another language besides English which may present a communication barrier for the family. The PCHP National Center has identified these five risk factors as indicators that children are at-risk for educational disadvantage, making them appropriate candidates for participation in PCHP.

*Family skills and resources.* The Familia Inventory: A Questionnaire for the Assessment of Literacy Practices in Families (Infant-Toddler Version) (Taylor, 2001) was used to examine family literacy skills and resources. The measure is designed for use with families with children who are not yet elementary school-age. The tool is appropriate for use with families with children aged birth to 5 years and is available in English and Spanish versions. The measure was administered to families at program entry, 4-6 month follow-up, and at program exit.

The Familia is a 51-item, parent self-report measure that examines the frequency of literacy related activities in the family along nine dimensions (practical reading and writing in the home, family work and play, shared reading, parental modeling, verbal interaction, extended family support, library use, and support of school). Statements regarding the frequency of family activities are rated using a 5-point scale with responses ranging from 'Never' to 'Daily'. Sample questions examining verbal interaction in the family are "We talk with our children as we play, work, or carry out our daily routine" and "We sing songs and say rhymes with our children". Sample questions examining shared reading are "We read colorful infant/toddler books with our children" and "We have favorite books that we read over and over with our children".

Each subscale of the Familia contains six questions (some questions load on more than one subscale) for a total potential score of 30 points per subscale. Two subscales measure parents' individual skills (practical reading and writing in the home), three examine families' contacts with support systems (extended family, library use, and support of school), and four examine parent-child interaction around literacy activities outside of visits (family work and play, shared reading, parental modeling, and verbal interaction).

Correlational analyses found strong associations between several of the subscales measured by the Familia and hence two composite measures were created. One composite measure examines parents' individual literacy skills ( $r = .669$  for practical reading and writing subscales) and another measures family literacy interaction ( $r = .531-.708$  for family work and play, parental modeling, shared reading, and verbal interaction).

*Community risk.* Three city-level indicators were used to examine the socioeconomic and educational characteristics of communities in which PCHP programs were located. These three indicators were the percentage of (1) individuals in the community who have not graduated from high school, (2) families below the poverty line and (3) families in the community who speak a language other than English. These indicators are among those suggested by Coulton (1995) as community-level indicators of the well-being and achievement of children in a community. Data on these indicators were obtained from the U.S. Census Bureau (2007) 2005-2007 American Community Survey. These rates were then transformed into z-scores with a

mean of 0 and a standard deviation of 1.0. This is the same procedure used by McGuigan et al. (2003a) and was used to account for extensive variation in rates across each indicator. Mean z scores for each indicator ranged from .11 - .22 ( $SD = .95 - 1.05$ ) Higher scores for indicators suggest that the community is at greater literacy and socioeconomic risk due to higher rates of families in poverty, individuals without a high school degree, and individuals who do not speak English.

## Dependent Variables

*Program participation.* Program participation was assessed using two measures: program completion and length of participation. To complete the program families in Massachusetts were required to receive the equivalent of 17 weeks of home visits or 34 visits total each year. Families typically received two one-half hour visits per week during the school years from September to June, not counting school vacation periods. Families who received all of the required visits, even if they occurred outside of the 17 week timeframe, were classified as completing the program. Those who do not receive the equivalent of 34 visits were classified as not completing the program.

PCHP is a two year program. Typically children start the program when they are two-years old and complete the program when they turn four and transition to preschool or head start. While there is a requirement that families receive a minimum of 34 visits each year to complete the program, there is no maximum. Therefore, the length of time families choose to remain enrolled in the program can vary based on their interest, motivation to complete the visit requirements, family needs, and access to preschool services in their community. Families' length of enrollment in the program in months, another measure of program participation, was calculated by using their program entry and exit dates.

## RESULTS

### Overview of Analyses and Presentation of the Results

The first set of analyses compared Latino and non-Latino families enrolled in PCHP. Analyses examined differences in the demographic characteristics, family educational risks, and resources at program entry to understand the unique challenges faced by different ethnic groups enrolled in PCHP in Massachusetts. In the second set of analyses Pearson correlations were utilized to examine the interrelations between the independent and dependent variables in the study. Results of these analyses were used to identify predictor variables to be entered into the regression equations. Finally, regression analyses were used to predict the dependent variables program completion and length of enrollment using simultaneous entry.

### Differences in Latino and Non-Latino PCHP Participants

As shown in Table 2, there were several statistically significant differences in the demographic characteristics of families in the present study by ethnicity. Latino program participants were more likely to have lower incomes, use literacy skills less frequently (individually or in interaction with their children), to be single parents, have less extended family support, and to

reside in urban areas than non-Latino families. They were also less likely to use community resources such as the library at program entry. Overall, Latino families experienced twice the number of risk factors as non-Latino families enrolled in the program.

TABLE 2  
Differences in Latino and Non-Latino PCHP Participants

Variable	Parent Ethnicity		Statistic $\chi^2$ or t
	Latino	Non-Latino	
	<i>n</i> = 145	<i>n</i> = 391	
Age at Entry/Years (SD)	2.47 (.82)	2.41 (.77)	NS
Child Gender: % Male	45.50%	50.50%	NS
Family Size (SD)	3.37 (1.09)	3.58 (1.06)	2.00, <i>p</i> = .046
% Single Parents	46.20%	32.70%	8.41, <i>p</i> = .004
% Low Income (>\$20,000)	71.50%	51.30%	17.56, <i>p</i> < .001
% Urban/Metropolitan	60.40%	36.00%	25.75, <i>p</i> < .001
No. of Family Risks	2.63(1.26)	1.37 (1.18)	10.71, <i>p</i> < .001
Individual Literacy Skills	38.90 (11.45)	43.16 (10.16)	3.94, <i>p</i> < .001
Extended Family Support	16.85 (6.04)	18.34 (6.17)	2.50, <i>p</i> = .013
Library Use	8.06 (7.41)	10.26 (7.78)	2.95, <i>p</i> = .003
Support of School	13.03 (9.15)	13.40 (8.99)	NS
Parent-Child Interaction	94.09 (17.69)	100.54 (15.80)	4.07, <i>p</i> < .001

### Intercorrelations among Predictor Variables

Logistic and multiple regression were used to predict the dependent variables of program completion and length of participation from a series of predictor variables including ethnicity, family educational risk, family resources at program entry, and community risks. For the dichotomous variables of gender, ethnicity, and program completion, dummy variables were created where 0 = Not Male and 1 = Male, 0 = Not Latino and 1 = Latino, and 0 = Did not drop-out and 1 = Did drop out of the program. Table 3 contains information on the correlations between the dependent and predictor variables.

TABLE 3  
Intercorrelations between Dependent and Predictor Variables ( $n = 539$ )

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Latino <sup>a</sup>		-.04	.04	.42**	-.18**	-.17**	-.11*	-.13**	-.02	.27**	.39**	.45**	-.03	-.06+
2 Gender <sup>a</sup>			.03 <sup>a</sup>	-.03	-.01	-.01	-.03	-.05	-.03	.06	.04	-.04	-.02	.00
3 Age				.07	.01	-.04	.05	.06	.09*	-.11**	-.11**	-.00	.25**	-.01
4 Family Risk					-.31*	-.30	-.11**	-.19**	-.05	.25**	.30*	.38**	-.15	.12**
5 Literacy Skills						.80**	.42**	.38**	.18**	-.20**	-.19**	-.25**	.07*	.01
6 P-C Interact							.48**	.31**	.17**	-.16**	-.18**	-.29**	.06+	.01
7 Family Support								.16**	.05	.01	-.01	-.17**	-.04	.02
8 Library Use									.19**	-.21**	-.18**	-.09*	.06+	-.08*
9 School Support										-.10*	-.08	.02	.07*	-.03
10 CR: No HS Degree											.78**	.47**	-.20**	.10*
11 CR: Poverty												.67**	-.17**	.07+
12 CR: ESL													-.16**	.07+
13 Time enrolled														-.62**
14 Prog. <sup>a</sup> Complete														

+  $p < 0.10$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

Note: All correlations are Pearson correlations except those noted by " which denotes biserial correlations

There was a statistically significant association between program completion, family educational risk, library use, and the high school dropout rate in the community in which the family resided. More family educational risks, less use of community resources like the library, and a higher rate of not completing high school were associated with not completing the program. Families who entered the program when children are younger children, experienced fewer family educational risks, were more supportive of school, and lived in communities with fewer risks remained in the program longer.

### Predicting Program Completion and Length of Enrollment

A series of logistic regression and multiple regression equations were constructed. Logistic regression was used to predict program completion from child factors (age, gender), ethnicity, family educational risks, family resources at program entry, and community risks. Multiple regression was used to predict length of enrollment using the same set of factors. Predictors entered in the model were restricted to those which showed a statistically significant association with the dependent variable at  $p < .10$ . Ethnicity was entered in all models due to its theoretical significance to this study's research questions.

**Predictors of Program Completion.** Table 4 contains the results of logistic regression analyses for the entire sample. The model utilized significantly predicted whether or not a family completed the program,  $\chi^2(6) = 27.345, p < .001$ . The odds of dropping out of the program were greater for non-Latino families and those who experienced more family educational risks. In addition, there was a trend for those in communities with higher ESL and lower high school graduation rates to drop-out of the program. Since ethnicity was a significant predictor in the model, separate logistic regression equations were constructed for Latino versus non-Latino families using all of the significant predictors utilized in the original set of logistic regressions.

TABLE 4  
Summary of Logistic Regression Analyses Predicting Program Completion ( $n = 533$ )

Variable	B	SE	Odds Ratio	95 CI	Wald Statistic
Dummy Latino	-0.87	0.26	0.42	[0.25, 0.69]	11.56**
Family Risk Index	0.19	0.08	1.21	[1.03, 1.41]	5.63*
Library Use	-0.01	0.01	0.99	[0.96, 1.01]	1.33
% No HS Graduation	0.27	0.14	1.31	[0.99, 1.73]	3.44+
% Families in Poverty	-0.11	0.17	0.89	[0.64, 1.24]	0.46
% ESL	0.25	0.14	1.28	[0.98, 1.67]	3.31+

+  $p < 0.10$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

Note: CI = confidence interval

Table 5 contains the results of the logistic regressions for Latino versus non-Latino families. The model for Latino families significantly predicted whether or not a family completed the program,  $\chi^2(3) = 15.907, p = .001$ . For Latino families, the odds were greater of dropping out of the program if the family lived in a community with a high ESL rate. The model, when utilized with non-Latino families, significantly predicted whether or not a family completed the program,  $\chi^2(3) = 14.899, p = .002$ . For non-Latino families, the odds of dropping out of the program were greater for families who experienced more risks.

TABLE 5  
 Summary of Logistic Regression Analyses Predicting Program Completion for Latino and Non-Latino Families

Variable	B	SE	Latino (n = 144)			Non-Latino (n = 389)			Wald	
			Odds Ratio	95% CI		B	SE	Odds Ratio		95% CI
Index	-0.02	0.16	0.98	[0.72, 1.34]	0.01	0.28	0.09	1.323	[1.10, 1.59]	9.06***
% Poverty	-0.19	0.26	0.83	[0.49, 1.38]	0.52	0.22	0.12	1.240	[0.98, 1.57]	3.12+
% ESL	0.78	0.30	2.17	[1.21, 3.88]	6.82**	0.02	0.15	1.017	[0.75, 1.38]	0.01

+  $p < 0.10$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

Note: CI = confidence interval

## Predictors of Length of Participation in Home Visiting

Table 6 contains the results of multiple regression analyses predicting length of enrollment in the program from ethnicity, child, family, and community factors. Ethnicity, child age at entry, family educational risk, family support of school at program entry, and the high school graduation rate of the community in which the family resided were found to be significant predictors of length of enrollment in the program. Latino families, those children who entered the program when they were younger, experienced fewer family educational risks, had parents who reported being involved with their children's school, and resided in communities with a lower rate of individuals not graduating from high school remained in the program longer. The overall model was significant, accounting for 11.8% of the variance in length of enrollment,  $F(3, 529) = 14.71, p < .001$ .

TABLE 6  
Multiple Regression Analyses Predicting Length of Enrollment ( $n = 533$ )

Variable	B	SEB	$\beta$	95% CI
Dummy Latino	1.83	0.87	0.010*	[0.13, 3.54]
Age at Entry	-2.71	0.42	-0.27***	[-3.54, -1.89]
Family Risk Index	-0.54	0.29	-0.09	[-1.11, 0.02]
Individual Literacy Skills	0	0.03	0	[-.07, 0.06]
Support of School	0.07	0.04	0.08*	[0.00, 0.15]
% No HS Graduation	-1.44	0.51	-0.19**	[-2.45, -.43]
% Families in Poverty	-0.01	0.60	0	[-1.19, 1.18]
% ESL	-0.72	0.50	-0.09	[-1.68, 0.26]
$R^2$	0.188			
F	9.927**			

+  $p < .10$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Note: CI = Confidence Interval

Since ethnicity was a significant predictor of length of participation, separate equations were constructed for Latino and non-Latino families. In both sets of analyses, child age at entry and the high school graduation rate were statistically significant predictors of program participation [ $F(4, 139) = 10.387, p < .001$  for Latinos and  $F(4, 384) = 9.843, p < .001$  for non-Latinos]. These variables accounted for 23% of the variance in length of participation for Latinos and 9.3% for non-Latino families.

## DISCUSSION

This study examined differences in factors associated with program completion and length of enrollment for Latino and non-Latino families enrolled in a literacy-focused early childhood home visiting program. Hernandez, Denton, and Macartney (2008) discuss the challenges Latino

immigrant parents face in understanding the U.S. educational system, interacting with individuals within it, assisting their children with academic work, and getting their children the support they need. However in the present study non-Latino families were at greater risk for program non-completion and Latinos were more likely to participate longer in programs. Study findings will be put in the context of existing literature on family participation in home visiting programs. Differences in the characteristics of Latino and non-Latino families enrolled in PCHP in Massachusetts will be examined. Microsystem factors important to predicting program completion and length of enrollment will be discussed, highlighting how these finding may be used to reduce barriers to service provision and support vulnerable families enrolled in home visiting programs.

### Differences in Latino and Non-Latino PCHP Participants

This study found ethnic differences in the characteristics of families that participate in PCHP in Massachusetts. Latino families enrolled in the program were more likely to have lower incomes, to use literacy skills less frequently (whether individually or in interaction with their children), to be single parents, have less extended family support, and to reside in urban areas. The findings regarding differences in literacy promoting activities for Latino versus non-Latino is similar to what has been found in other studies (Wagner et al., 2003).

However, there are also two areas which Latino families did not differ from their non-Latino counterparts; extended family support and support of school. A notable and unexpected finding of the present study is that Latino families in this study reported lower levels of family support than non-Latino families in this sample. This is counter to what has been indicated by other theoretical and empirical work (Coatsworth et al., 2006; Middlemiss & McGuigan, 2005). One possible explanation may have something to do with how external family support was measured. The focus here was on how frequently external family members provided literacy support to children by providing books, literacy materials, reading experiences, and by spending time with them, not emotional support, which is more typically thought to underlie familialism (Coatworth et al., 2006; Middlemiss & McGuigan, 2005). There are often generational differences in the literacy skills of grandparents and a higher likelihood of their geographic separation in immigrant, Latino families. These two factors may make it more difficult for Latino families in the U.S. to obtain extended family support in the form of family members providing children with books as gifts, sharing stories, or spending time together. This may be the reason why external family support, as assessed in this study, did not serve as an important predictor of program completion or length of engagement.

In terms of support of school, while some work indicates Latinos experience more barriers to participation in their children's school activities (Hernandez et al., 2008) recent work suggests otherwise. The Pre-K Now study (Garcia & Gonzales, 2006) suggests that the majority of Latino parents are actually strong supporters of developing their children's literacy skills. They find that 96% support the use of pre-kindergarten services for children and almost half see the experience as important to developing children's academic skills and knowledge of letters, numbers, and colors. This study confirms this finding, with Latino families in this sample reporting that they are equally likely to be involved with their child's preschool or daycare center as non-Latino families. However, since we used a self-report measure to assess support of school, social desirability may have also been a factor which impacted our results.

## Factors Associated with Program Completion

This study found different sets of factors predict program completion for Latino and non-Latino families. Family experiences, patterns of organization, and interaction may differ for these two groups, influencing their participation patterns in home visiting programs (Coatsworth et al., 2006). Overall, the odds of dropping out of PCHP in Massachusetts were higher for non-Latinos and those experiencing more family educational risks.

While cultural issues may have played a role in the higher completion rate for Latino families enrolled in PCHP, as other studies have shown (Coatsworth et al., 2006; Daro et al., 2007; Daro et al., 2003; McCurdy et al., 2006; McCurdy et al., 2003, McGuigan et al, 2003ab; Middlemiss & McGuigan, 2005; Wagner & Clayton, 1999), an alternative explanation may also apply. It is likely that because Latino families experienced far more risks in this sample than non-Latinos, home visitors perceived them as needier and provided more assistance to them than non-Latino families; this in turn enabled them to complete the program at a higher rate than their non-Latino counterparts. This has been found in other work (Sharp et al., 2003). Follow-up work should examine home visitor-parent interaction and how patterns differ across Latino and non-Latino families to look for biases in interaction toward Latino families or against non-Latino families participating in literacy-focused programs.

For non-Latinos, family educational risk was an important predictor of program completion. Family educational risks, including low parental education level, language barriers, poverty, and single parenthood may serve to impede families' ability to meet program participation requirements in literacy-focused home visiting programs. For Latinos, only the ESL rate of the community was a significant predictor of program completion. McGuigan et al. (2003a) found those families living in communities with poorer community health were less likely to engage in programs. In this study a higher ESL rate decreased the odds that families would be able to complete the required number of home visits.

In communities where there are large numbers of individuals struggling with the same issue, whether it be to learn a new language, adapt to a new culture, or help their child succeed educationally where few do, there may competition for resources. There may also be fewer models of success in the community for families to learn from and to use for inspiration. These factors may collectively impact program completion. Stamps and Bohon (2006) note that immigrants face many risks to their social adaptation including discrimination, negative stereotypes based on race, and hostility directed at them due to the role immigrants play in the competition for jobs and resource demands in a community. They add that new immigrant groups and those that settle in "traditional gateway cities" may encounter more hostility and therefore may be less optimistic about their prospects and their children's future.

The use of peer mentors by home visiting programs operating in areas with high rates of second language learners may be important to help promote family success. In addition, work with families may need to extend out from the home into the community. Collaboration between programs that serve English Language Learners (ELLs) may assist home visiting professionals in understanding the challenges and needs of second language families, help link parents enrolled in home visiting programs and their family members with educational supports, and facilitate the develop of social network for Latino families.

## Factors Associated with Length of Enrollment

In the present study four factors were important to understanding families' length of enrollment in programs for the full sample: Ethnicity, child age, parental support of school, and the graduation rate in the community where the family resides.

Child age at entry in programs was important for both Latino and non-Latino families, highlighting the importance of program outreach and targeting in locating and registering children early in development. In Massachusetts many PCHP programs were based within public schools where preschool services typically start at age three. Hence, it is crucial that home visiting programs collaborate with early intervention programs, pediatricians, and family child care providers in order to effectively outreach to families with older infants and toddlers who may qualify for programs like PCHP.

Not surprisingly, across the full-sample families who reported being more actively involved in their children's childcare or preschool settings remained enrolled in PCHP longer. However, it also important for home visiting programs to further consider how to identify when a family has "maxed out" the benefits they can accrue from home visiting programs and when they need to be transitioned to other services within their community. Programs need to consider how to make data and assessment driven decisions about what is the appropriate length of enrollment in programs for families instead of using indicators such as a prescribed length of participation or if and when a child ages out (McGuigan et al., 2003ab; Wagner et al., 2003)

Finally, the high school completion rate of the community was an important predictor of length of enrollment in PCHP for both Latino and non-Latino families. McGuigan et al. (2003b) found in their study of Healthy Families programs that higher rates of community violence predicted whether families would receive more home visits. Similarly, the present study found that families living in communities at greater educational risk, as indicated by a lower high school completion rate, remained enrolled in PCHP longer. Home visiting in these communities may serve as a means for families who want to have their children succeed in school to gain needed support that may not be readily available in the larger community.

Conversely, PCHP families residing in communities with higher high school completion rates may feel isolated and separated from their community. They may feel that there is a stigma utilizing literacy-support services in a community where there is a history of associated with educational success, as evidenced by the high number of individuals completing high school. Home visiting programs may need to work harder with families in these communities to assist them in feeling comfortable in the literacy environment of their community. It is important to consider how to assist families who may feel isolated from literacy services in their community, such as the library. Isolation may play a role in length of enrollment, as has been suggested by McGuigan et al. (2003a). Helping families feel comfortable and knowledgeable about free literacy services available in their community at program entry, such as those offered by the library such as borrowing privileges, translation services, story times, plays, and puppet shows, may be a cost-effective investment.

## Strengths and Limitations

The data for this study were obtained from a state with one of the largest concentrations of state-funded home visiting programs in the country (Johnson, 2009). As such, it provides important information about how the health of the 25 communities where programs were located and

families reside impacts program participation. While this study provides valuable information several limitations need to be acknowledged. The first limitation involves the use of Latino versus non-Latino groups for comparison purposes. The construction and use of these groupings may obscure differences between ethnic groups such as Asian and African-American families that have been noted by other researchers such as McCurdy et al. (2003). It is also important to note that African-Americans are underrepresented in the sample because there is only one PCHP program in the urban center of Boston, which has a higher concentration of black families than other areas of the state.

It is also important to consider that our Latino group is more diverse than is reflected in using the general term Latino, leading us to examine as one group a segment of the population that may be very diverse itself. A recent review of the literature by Sarkinsian et al. (2006) argues that different groups of Latinos encounter distinctively different immigration laws and job opportunities, leading to socioeconomic differences, which in turn could result in differences in family integration.

A final limitation involves the use of the Familia (Taylor, 2001) to examine literacy skills and resources at program entry. The tool is a self-report measure and therefore may not provide a true index of parents' English language skills and not an adequate measure of whether parents had the skills needed to effectively complete program requirements or remain enrolled in home visiting programs. In addition, because the tool was administered to families at program entry social desirability in reporting may have also been a factor.

## Conclusions

Effective early childhood programs are built off of the needs of communities. This study highlights the continuing role that community needs play in the program processes. Programs cannot be viewed in isolation of the communities in which families live. It is vitally important to consider what other supports, beside the program, are needed to help the family be successful in the context in which they live and grow. Using a family strengths perspective requires early childhood professionals to utilize a multidimensional assessment of families, looking beyond risk for strengths that may provide "ordinary magic" (Masten, 2009) and which can be utilized to promote persistence and resilience in interventions (Walsh, 2006; Werner, 2000). Among the strategies that may need to be utilized include policies that allow inclusion of other family members and contexts during the intervention. The use of mentors for families or home visitors who are from the same community who have beaten the odds is also key. Families may also benefit from an approach which considers more carefully how to build family literacy skills using a practical or ecologically-sensitive approach, incorporating interactions at home, in the grocery store, and out on the playground, especially when families live in communities where there are few English-speaking models. This would allow program participants to be more aware of the resources and mentoring opportunities available in their community. Further, more in-depth professional development opportunities and supervision for home visitors on cultural and linguistic issues are needed to ensure culturally competent and environmentally-responsive services in the field.

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