Chapter 7
Engagement and Retention in Home Visiting Child Abuse Prevention Programs

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Introduction of Study of Program Engagement

Home visiting is a common strategy used throughout the USA and many other countries to assist high-risk families in the prevention of child maltreatment and abuse. Nonetheless, a summary of the home visiting literature (Gomby, Culross, & Behrman, 1999; Sweet & Applebaum, 2004) showed that most home visiting programs reported only moderate success in changing parental risk behaviors. Program success and effectiveness may be undermined by a lack of active parental participation since the success of home visiting programs is reliant upon parental involvement. While no studies have been conducted to demonstrate the exact number of home visits or exact amount of time in the program that is necessary to create change, there is evidence that increased participation results in greater benefits (Daro, McCurdy, Falconnier, & Stojanovic, 2003; Olds et al., 1999; Wagner & Clayton, 1999). Therefore, studies that seek to explain why families engage and remain active in home visiting programs are extremely important.

This chapter is a review of the findings from two previous studies of engagement and retention in a home visiting program (McGuigan, Katzev, & Pratt, 2003a; McGuigan, Katzev, & Pratt, 2003b). Both studies used data from the Oregon Healthy Start (OHS) program, a voluntary home visiting family support program designed to prevent poor child outcomes, including child maltreatment. The OHS program was modeled after Healthy Families America (HFA), a national child abuse prevention initiative of Prevent Child Abuse America (1999). From 1994 to 2003, the OHS program used the 15-item Hawaii Risk Indicators (HRI) checklist (Hawaii Family Stress Center 1994) to screen approximately 80% of all first-birth mothers in 15 participating Oregon counties. Mothers were screened at or near the time of their first child's birth. Screening items included known

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risks for child maltreatment, such as a mother who has not completed high school, is unmarried, and who received late or no prenatal care. All families who were screened received one "welcome baby" home visit, a list of community resources, a packet of child development information, and various free baby supplies (diapers and baby blanket). Approximately one half of all mothers screened showed two or more risks on the HRI checklist. Two or more risks qualified these mothers for further assessment using the Kempe Family Stress Inventory (KFSI). The KFSI is an in-depth interview that assessed ten psychosocial factors related to child maltreatment including history of childhood abuse and history of substance abuse (Korfmacher, 2000; McGuigan & Pratt, 2001).

The purpose of the first study was to examine factors that contribute to active engagement in home visitation services. National surveys report that parents generally approve of the idea of home visiting family support programs (Taffee-Young, Davis, & Schoen, 1996). Visiting families at home allows those families to receive support services in the convenience of their own home, eliminating potential barriers such as the need for childcare and transportation costs. Still, many eligible parents do not participate in these voluntary services (Daro & Gelles 1992). Reaching and enrolling target families in services is a common problem for programs designed to support children and families, especially for those serving high-risk populations (Larner, Halpern, & Harkavy, 1992). A number of studies report that up to 25 % of eligible parents decline to enroll in home visiting family support programs (Gomby, Culross, & Behrman, 1999; National Committee to Prevent Child Abuse (NCPCA), 1996).

Even when parents enroll in home visitation programs, it is no guarantee they will engage in services (Daro & Harding, 1999). Many home visiting programs consider parents enrolled if they agree to participate when services are initially offered. Agreeing to participate in a program is different from actively engaging in services. For example, evaluation of Hawaii's Healthy Start program found that beyond the 15 % of "initial refusals," there was an additional 15 % of "secondary refusals" (NCPCA 1996). These were parents who initially enrolled in services, but who dropped from the program after receiving very few, if any, home visits during 3 months of intensive outreach efforts. Other studies confirm that a substantial portion of parents drop out of home visiting programs within the first few weeks after enrollment (Marcenko & Spence, 1994; Myers-Walls, Elicker, & Bandyk, 1997).

Studies have not differentiated degrees of participation by separating non-engaging families from engaging families. Instead, one study of program participation combined families who enrolled but were dropped or withdrew after receiving few, if any, home visits (non-engaging families) with other families who received ongoing home visits but dropped out at some point prior to program completion (Clark & Winje, 1998). This might be because most studies focus on factors that contribute to overall attrition or any premature departure from services (McCurdy & Daro, 2001) rather than specifically examining program engagement.

By focusing almost exclusively on why parents leave programs, researchers ignore an equally fundamental question: Why do some eligible parents who enroll in

home visitation programs never fully engage in services? More specifically, what factors in the community and in the family influence the decision to engage in services? As stated by McCurdy and Daro (2001), early research "suffered from a restrictive conceptual framework…in terms of the areas explored" (p. 113). The vast majority of researchers limited their scope to one or two potential determinants of program participation (primarily participant and provider characteristics), rather than acknowledging that participants and providers live in communities. Focusing strictly on participant and provider characteristics ignores the potential influence that community factors might have on families' engagement in home visiting programs (McCurdy & Daro, 2001).

We add to the discussion of engagement in home visiting programs that past research is restricted in the methods of analysis. Researchers understand that individual factors (e.g., income, age, and ethnicity) and community factors (e.g., community health characteristics) can influence where parents live. However, individual and community factors also are likely to influence which services a parent seeks out and uses. The "nested" structure of these levels of influence (individuals within communities) requires recognition of the interdependence of these causal agents and movement from a reliance on conventional linear or main effect models.

Researchers have long suspected that community factors influence mothers' commitment to engage in home visitation services (Damashek, Doughty, Ware, & Silovsky, 2011). Yet to date, there remains a paucity of research that has addressed specifically which community factors affect mothers' engagement in home visitation services. Comparisons across community areas on established health outcomes may be one way to broaden our understanding of the effectiveness and practices of programs within the communities. Examining community health factors exemplifies an "outcome orientation" that communities can affect families positively or negatively, and this effect can be measured in higher or lower rates of positive outcomes for the population living in the area (Coulton, Korbin, & Chow, 1995).

On an individual level, if teenage mothers had conflictive and non-supportive families, they were less likely to fully engage in a home visiting parenting program (Josten, Mullett, Savik, Campbell, & Vincent, 1995). Studies report higher rates of engagement in family support programs among mothers whose infants displayed health risks at birth (Josten, Mullett, Savik, Campbell, & Vincent, 1995; Olds & Kitzman, 1993). Lower rates of engagement in home visitation services are reported for mothers who experienced family conflict or family problems (Josten, Mullett, Savik, Campbell, & Vincent, 1995). High-risk pregnant women who abused substances (Damashek, Doughty, Ware, & Silovsky, 2011; Navaie-Waliser et al., 2000) and mothers who knew they would soon be moving to another house or neighborhood also were found to be less likely to engage in home visiting services (NCPCA, 1996).

One early study of participation in parent education programs found that after initial enrollment mothers who were raising their children without a supportive network of family and friends perceived greater benefits and fewer costs of program involvement than did mothers with extensive support networks (Powell, 1984). In

contrast, a later study focusing on the health outcomes of participants in a home visiting program found that family and friendship networks had the opposite effect on program engagement. Luker and Chalmers (1990) reported that after an initial decision to enroll in home visitation, mothers with a limited network of maternal support were more likely to withdraw from the program early.

Beyond individual risk factors, we suspect that the overall health of the community would influence the decision of mothers with newborns to engage in home visitation services. Although there are many possible paths of influence, one plausible explanation is that in areas of high community health, mothers may see supports for healthy family conditions as common. We concur with McCurdy and Daro's (2001) speculation that in communities where the dominant ethos views healthy families as an asset, mothers may be more likely to engage in services. In contrast, mothers raising their newborns in areas with poor community health may be more wary and less likely to expect positive results from a social service program. These mothers may see the family deficits present in their community (i.e., high infant death rate and high number of low-birth-weight infants) as normal conditions families should expect to endure alone. An adequately large sample allowed us to statistically control for several factors related empirically to participation in home visiting programs while testing the following two hypotheses:

- H_1: After initial enrollment, mothers raising their newborn infant in areas with poorer community health are less likely to actively engage in home visiting family support services.
- H_2: After initial enrollment, mothers experiencing greater maternal isolation are less likely to actively engage in home visiting family support services.

In this study, the data came from OHS. One of the mandates from the Oregon legislature was that OHS seek to improve health outcomes for the families they served, such as ensuring access to preventative health care and improving immunization rates for children. Public health departments were active collaborators in the OHS programs. In many counties, the OHS program was physically housed within the public health building. Whereas other community factors such as social cohesion and social disorganization can impact families, community health factors were particularly important to the OHS home visiting program.

Methods of Study of Program Engagement

To improve the health and welfare of Oregon families, OHS offered regular home visits to high-risk families during the first 5 years of raising their firstborn child. Home visits were scheduled based on the family's needs, beginning with weekly visits and graduating to monthly visits. Home visitors offered parenting education, support, and referrals to any needed services such as mental health services, alcohol and drug treatment programs, childcare, food, housing, and transportation. All OHS home visitors received at least 96 hours of initial training and over half (53%) had college degrees, some with degrees in nursing.

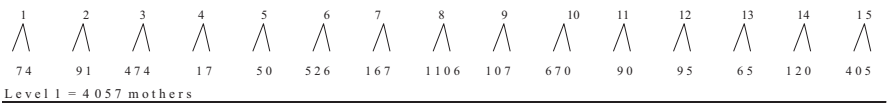

Fig. 7.1 Engagement study: two-level model predicting engagement in home visits for 4057 mothers residing in 15 counties

From January 1, 1995 to December 31, 1998, a total of 4341 families were assessed as high risk and offered regular home visitation services. Of these, 284 (7%) refused any further service. The remaining 4057 (93%) mothers gave their written consent to participate in home visitation and were considered enrolled in the OHS program. These mothers lived in 15 Oregon counties and made up the study sample ($n=4057$). There were no significant differences in risk or assessment scores between those who refused and those who initially accepted OHS services (Fig. 7.1).

Mothers in the study sample resided in semirural or small metropolitan areas and were predominantly single (78%). Over half had low incomes (58% with gross monthly family incomes < US$1000) and less than a high school education (54%). The sample was predominantly White (77%) with 23% minorities (18% Hispanic, 5% African-American, Native American, Asian, or other). On average, mothers were 20.6 years old ($SD=5.0$) when their child was born, and most did not work outside the home (82%). Over half of the mothers (58%) lived with their husband or boyfriend; one third (33%) lived with parents, relatives, or friends; and the remaining 9% lived only with their newborn child.

The OHS program followed HFA guidelines when dealing with families who had accepted the program but were reluctant to fully engage in services or difficult to contact. For the first 3 months after enrollment, OHS workers used "creative outreach" techniques to connect with families. These included repeated mailings, telephone calls to the home, work, and message numbers, and drop-by visits to the home. After 3 months of intensive outreach efforts, families were discharged from the program if (a) home visitors were not able to schedule a visit, (b) families were consistently absent after scheduling home visits, or (c) the families said they no longer wanted to participate.

Based on these established HFA guidelines and the fact that OHS was designed to provide 5 years of supportive services, involvement in the program beyond 3 months was accepted as a legitimate definition of program engagement. Engagement was coded as received services more than 90 days (0) and received services for 90 days or less (1). Thus, the dependent variable was non-engagement in home visitation services. Of the 4057 families who initially accepted services, 745 (18.4%) remained enrolled in the program from 1 to 90 days, for an average of 34 days ($SD=31$). The number of home visits completed by these 745 families ranged from 0 to 4, with an average of 0.48 home visits ($SD=0.72$). With that being said, we considered these 745 families as never actively engaging in the OHS home visiting programs.

A five-item maternal isolation index was constructed with each item being 0 = no (not an indication of isolation) and 1 = yes (an indication of isolation). Self-report items included the following: single, no spouse or partner; mother lives alone with newborn; mother has no phone; mother lists no emergency contact person. The fifth item on the maternal isolation index was assessed during the KFSI interview. This was "mother is isolated with few lifelines, low self-esteem, or depression." This combination of few lifelines, low self-esteem, or depression has always been part of the KFSI (Orkow, 1985). It is a global measure that reflects the mother's standing on two psychosocial components of maternal isolation: being socially isolated from others through a lack of lifelines and being personally isolated from immediate others due to low self-esteem and depression. Trained family assessment workers (FAWs) rated this item as not an issue for this mother, somewhat of an issue, or a significant issue. For this study, ratings were dichotomized as not at all an issue for this mother (0), and at least somewhat of an issue for this mother (1) to match the response categories of the other index items. The five items were summed to produce a total range of 0–5. Overall, mothers did not report high levels of maternal isolation; however, there was variation between engaging and non-engaging mothers at the lower levels of the index (see Table 7.1).

To control for the association between mother's age and engagement, the mother's age in years was included. Mother's ethnicity was included as Hispanic (0) and other ethnicity (1). Infant health status was assessed using information from birth records that indicated whether the child was premature (gestation < 37 weeks), of low birth weight (≤ 2500 g), or had any other medical risks at birth. Of the 4057 newborns in the study families, 320 (7.9%) displayed at least one of these three health concerns at birth. Infant health status was included in the analysis as at least one health concern present at birth (0) and no health concerns present at birth (1). As previously mentioned, retention may be affected by marital or family problems, maternal history of substance abuse, or living in unstable housing. These three items were included as additional control variables and coded as not an issue for this family (0) and an issue for this family (1).

Families in the same community were not differentiated on the measure of community health, so standard logistic regression would have introduced the possibility of bias by violating the assumption of independence. Families were not random-

Table 7.1 Engagement study: Means (standard deviations) or percentages of all variables by engagement status

Variables	Engaged (n = 3312)		Never engaged (n = 745)	
Poor community health index	0.63	(0.88)	0.86	(0.75)
Maternal isolation index	1.53	(0.82)	1.78	(0.93)
Mother's age (years)	20.63	(4.97)	20.46	(4.93)
Mother is non-Hispanic	81%		88%	
No infant health risks at birth	92%		94%	
Marital or family problems	47%		54%	
History of substance abuse	32%		31%	
Unstable housing	25%		29%	

ly assigned to family support programs nor were families or programs randomly assigned to communities. This lack of independence required a statistical method that could estimate non-independent community and individual level effects. Our outcome variable had a Bernoulli distribution (engaged: yes/no), so we used the hierarchical general linear model (HGLM) for the nonlinear analysis of binary outcomes (Raudenbush, Bryk, Cheong, & Congdon, 2000). The HGLM Bernoulli model was used to estimate the unique effect of poor community health and the unique effect of maternal isolation on mothers' engagement in the OHS program while holding constant the effects of the six control variables. This model allowed for the examination of all possible moderator effects within and across individual and community levels. Tolerance tests indicated no problems with multicollinearity.

Results of Study of Program Engagement

Results of the multilevel analysis for engagement provided support for our first hypothesis: Mothers living in counties with poorer community health were significantly less likely to engage in home visitation services. The multilevel analysis also provided support for our second hypothesis: Isolated mothers were less likely to engage. For every one-unit increase in the five-item maternal isolation index, the odds of engaging in home visitation services decreased by 39%.

Further, the multilevel model revealed that non-Hispanic mothers (95% White) were 82% less likely to engage in home visitation services than Hispanic mothers. When controlling for the significant effects of community health, maternal isolation, and mother's ethnicity, program engagement was not significantly related to any of the other variables: mother's age, history of substance abuse, unstable housing, family problems, or infant health.

While the sizes of the odd ratios were modest (Table 7.2), it is understood that without collinearity the additive log-odds of significant predictors are multiplicative. The addition of each risk factor "multiplies" the likelihood of non-engagement.

Table 7.2 Engagement study: Community- and family-level factors contributing to non-engagement ($n=4057$)

Variables	Coefficient	*t*-ratio	Odds-ratio
Poor community health index	0.31	2.86	1.36*
Maternal isolation index	0.33	6.63	1.39**
Mother's age (years)	0.01	0.04	1.01
Mother is non-Hispanic	0.60	4.71	1.82**
No infant health risks at birth	0.24	1.40	1.27
Marital or family problems	0.07	0.85	1.07
History of substance abuse	0.10	1.11	1.10
Unstable housing	0.10	1.01	1.10

*$p \leq 0.01$
**$p \leq 0.001$

Consequently, a White mother who had any one of the five indices of maternal isolation and lived in a county that scored one standard deviation above the average on the index of poor community health was nearly 3½ times (3.44) less likely to engage in services than mothers with none of these characteristics.

1.82	×	1.39	×	1.36	=	3.44
White mother		Living in isolation		Poor community health		

Introduction for Study of Program Retention

As previously stated, getting high-risk families to engage in home visiting programs can be a difficult task. An equally important hurdle to overcome is retaining families in home visiting programs once they have engaged. Reviews of home visiting programs (Guterman, 2000) found that 8–51 % of families leave home visiting programs within 12 months of service. The specific factors that contribute to these low rates of program retention remain unclear, but it is suspected that multiple levels of influence effect retention rates (McCurdy & Daro, 2001).

The underlying empirical rationale for the current study is that program retention is linked to program efficacy. The current study focused on the associations between retention in a voluntary home visiting child abuse prevention program and (1) the attributes of the communities in which the program was offered, (2) attributes of the home visitors, and (3) attributes of the enrolled mothers. Previous studies have been unable to estimate these multiple effects within the same statistical model due to the violation of independence. Mothers who receive visits from the same home visitor are not statistically independent of each other nor are visitors working within the same community. This lack of independence required a statistical method that could simultaneously estimate "non-independent" community, visitor, and maternal level effects while considering all possible interactions. It is only in the past decade that such robust statistical methods have become available. Hierarchical General Linear Modeling (HGLM; Raudenbush, Bryk, Cheong, & Congdon, 2000) is one such statistical technique appropriate for this type of multilevel analysis. This study used HGLM to obtain an accurate assessment of the unique roles that community, visitor, and maternal level attributes play in retaining families in a voluntary home visiting child abuse prevention program.

Community level attributes, such as community violence, contribute to the overall quality of family and community life and may have a strong impact on program retention. Community violence has a negative effect on children's healthy growth and development (Vig, 1996) and has been associated with increased family violence (Osofsky, 1995) and increased child maltreatment (Lynch & Cicchetti, 1998). An extensive body of research also shows that high levels of community violence contribute to a "toxic environment" detrimental to both families and the community as a whole (Osofsky, 1995). Garbarino and Kostelny (1992) found that in the most socially toxic communities, residents reported less family involvement,

fewer positive interactions with neighbors, and a lower quality of life. In contrast, residents in less toxic communities were more hopeful, reported more available services, and were more likely to participate in both formal and informal family support services.

In their cardinal study assessing the effects of community on child maltreatment, Garbarino and Sherman (1980) compared the help-seeking behavior of mothers living in high-risk, lower-quality-of-life communities to mothers living in low-risk, higher-quality-of-life communities. They reported that mothers living in high-risk communities were less likely to rely upon experienced helpers for support, and, when they did so, they were more likely to demonstrate an "incomplete" use of support services. These studies suggest that families raising children in violent communities may be difficult to retain in a voluntary home visiting child abuse prevention program.

There are limited accounts of how retention rates are influenced by the home visitor's age (Damashek, Doughty, Ware, & Silovsky, 2011), education, and training (Korfmacher, O'Brien, Hiatt, & Olds, 1999; Olds & Kitzman, 1993; Wasik, 1993). One study (Korfmacher, O'Brien, Hiatt, & Olds, 1999) found higher rates of program retention for nurse home visitors than for non college-degreed paraprofessional home visitors. However, it remains unclear how home visitors with other educational degrees, such as master of social work, master of public health, or bachelor's degrees in social sciences, might influence retention rates.

Lacking any standardized credentials or licensing, home visitors are often hired based on personal attributes thought to contribute to an effective helping relationship (Wallach & Lister, 1995). In a national survey of home visitation programs, staff identified maturity, warmth, empathy, and a non judgmental orientation as essential home visitor attributes (Wasik, 1993). However, it remains unclear which, if any, of these attributes affect program retention. An important home visitor attribute notably absent from previous studies is the amount of supervision the home visitor receives (Duggan et al., 2000). Supervision is especially important for home visitors serving at-risk families that experience chaotic lifestyles, multiple stresses, and difficulty in maintaining active service (Wallach & Lister, 1995).

The few studies that examined interactions between home visitor and maternal attributes identified some promising influences on retention. These included matching home visitors and participating mothers on ethnicity (Barth, Ash, & Hacking, 1986), establishing mutual perspective taking (Luker & Chalmers, 1990), and developing an empathetic helping relationship (Wallach & Lister, 1995). However, these findings have yet to be sufficiently replicated across studies.

Previous studies of intervention programs identified several notable maternal attributes that influenced program retention, but with little agreement about the direction of influence. While some studies reported that younger mothers tended to engage and remain in parenting programs (Olds & Kitzman, 1993), other studies reported younger mothers were more likely to drop out (Josten, Mullett, Savik, Campbell, & Vincent, 1995). Still another study reported that teens who had not finished high school were most likely to remain in home visiting services (Duggan et al., 2000). Married mothers were more likely to remain in a parent training

intervention (Dumka, Garza, Roosa, & Stoerzinger, 1997), while single mothers were more likely to engage in a statewide home visitation program (Myers-Walls, Elicker, & Bandyk, 1997). Ethnicity had no significant effect on retention in some home visiting parenting programs, while other studies with adequate samples of minority participants found significantly higher retention rates for Hispanic and African-American parents (Daro, McCurdy, Falconnier, & Stojanovic, 2003; Dumka, Garza, Roosa, & Stoerzinger, 1997; Navaie-Waliser et al., 2000). Several studies have found mothers of low-birth-weight preterm infants were more likely to remain in home visiting programs than mothers whose full-term infants had no special health-care needs (Duggan et al., 2000; Josten, Mullett, Savik, Campbell, & Vincent, 1995; Olds and Kitzman, 1993).

Methods for Study of Program Retention

Using an ecological framework (Bronfenbrenner, 1979), this study investigated the effects of community, visitor, and maternal attributes on retention in a voluntary home visiting program.

Mothers were nested within home visitors, and both were nested within communities (Fig. 7.2). A review of the literature indicated that attributes from each of these three levels could influence program retention. Accordingly, analyses were conducted to examine the effect of community violence on program retention, key home visitor attributes that influence program retention, key maternal attributes that influence program retention, and all possible interactions within and across these three levels.

Exploratory techniques were warranted because this study was part of an ongoing program evaluation. The immediate intent was to inform program-funding agents, administrators, and providers of the distinct attributes at each of these levels that may impact retention in voluntary home visiting child abuse prevention programs. As outlined in the introduction, the underlying empirical rationale for this study is that program retention is linked to program efficacy. By knowing what factors influence program retention, program staff could develop strategies to increase retention rates and, thereby, increase program effectiveness.

Healthy Start FAWs conducted the KFSI interviews after receiving extensive training in the KFSI interview protocols. Scores on the KFSI can range from 0 to 100 with scores above 25 considered at risk for poor child outcomes. Approximately 75% of all families assessed with the KFSI scored above 25 and were offered weekly home visits and extensive family support services by trained family support workers (FSWs). Each year over 92% of the families who were assessed as high risk on the KFSI accepted regular home visits and were considered enrolled in the Healthy Start Program.

FSWs, most with bachelor's degrees, received 96 hours of training before providing home visits to higher-risk families with firstborns, as they begin parenting. Nurses and multidisciplinary teams of professionals supervised FSWs. Further-

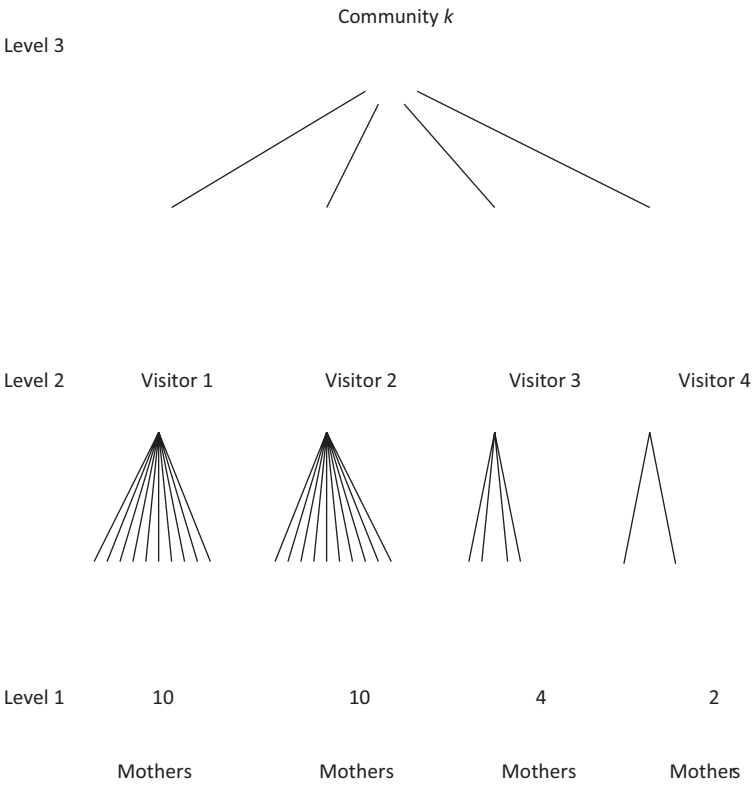

Fig. 7.2 Retention study: diagram of the multilevel structure of one community's home visiting program

more, this study was part of that ongoing evaluation and represents families who received home visits between February 1, 2000 and February 1, 2001.

Research has shown that the first year families begin parenting to be especially stressful (Belsky & Rovine, 1990). National statistics show the highest percentage of child abuse fatalities occur during the child's first year (US Department of Health and Human Services, 2000). Accordingly, OHS begins services either during the prenatal period or immediately after the first child's birth, starting with weekly home visits. Home visitors work with parents to set service-plan goals and refer parents to needed services (i.e., health care, counseling). During the first year, children in OHS families are linked to a primary health-care provider, begin the immunization sequence, are screened for developmental delays, and are referred to early intervention or other necessary services (Katzev, Pratt, & McGuigan, 2001). As families make progress toward service goals, they graduate to a lower intensity of service and less frequent visits throughout the first 5 years of child-rearing.

Because families drop out at varying times, the challenge for program evaluators is to define a level of retention that is meaningful to the specific program under review. This study used the crucial first-year time point as a meaningful measure of

retention in the OHS home visiting program. This 1-year time point closely parallels the mean number of months ($M = 13.7$) all OHS families received services during the 1999–2000 fiscal year (Katzev, Pratt, & McGuigan, 2001). Retention was dichotomized as families who received services at least 1 year (1) and families who stopped receiving services, for any reason, prior to 1 year (0).

The community attributes included in this study were four indices of community violence: the number of homicides, assaults, and forcible rapes known to police and the number of domestic violence arrests. The most reliable data available on the number of homicides, assaults, and forcible rapes known to police in each county were obtained from the Bureau of the Census (1999). Data on the number of domestic violence arrests in each county were obtained from the Oregon Department of Human Resources (1999). Data were based on 1995 rates per 1000 adults in each county's population.

On February 1, 2000, a staff questionnaire was mailed to all OHS site administrators, who made the questionnaire available to home visitors. The questionnaire included a cover page explaining that participation was voluntary. The questionnaire did not ask for home visitors' names, but did require home visitor ID numbers to match visitors with the families they served. Of the 73 home visitors employed across the 12 OHS sites, 71 (97%) completed the questionnaire. The staff questionnaire contained demographic questions including age, race, gender (all home visitors were female), and educational attainment. Job-specific questions were also included, such as prior experience conducting home visits and hours of individual supervision received per month. In addition, the questionnaire included two scales from the Interpersonal Reactivity Index (IRI; Davis, 1983).

The IRI is a self-report measure of empathy consisting of four seven-item scales. The staff questionnaire included the seven-item Perspective Taking scale that assessed the tendency to adopt the point of view of others and the seven-item Empathic Concern scale that assessed feelings and concern for others. Questions on the Perspective Taking scale included "I believe there are two sides to every question and try to look at them both." A typical question from the Empathic Concern scale was "I am often quite touched by things I see happen." Responses were on a five-point scale indicating level of agreement. Both scales had good internal reliabilities (Cronbach's alphas of 0.70 and 0.77) and established convergent and discriminant validity (Davis, 1983).

The Perspective Taking and Empathic Concern scales were included in exploratory analyses with five other home visitors attributes thought to affect program retention. Visitor's age was measured in years. Visitor's ethnicity was included as Hispanic (1) and other ethnicity (0). Education was recorded as bachelor's degree or higher (1) and less than a bachelor's degree (0). Experience conducting home visits prior to employment with OHS was measured as prior home visiting experience (1) and no prior home visiting experience (0). While the same service program employed the home visitors working in each community, workers in a given program could experience very different hours of supervision. The final home visitor attribute in the analyses was the hours of individual supervision received per month (Table 7.3).

Table 7.3 Retention study: Means and standard deviations or percentages of all attributes

	m	*SD*	%
Community level ($n=12$)			
Community violence index	7.85	2.22	
Home visitor level ($n=71$)			
Visitor is Hispanic			18.3
Bachelor's degree or higher			53.5
Prior experience conduction home visits			41.0
Visitor's age in years	39.25	9.54	
Monthly hours of supervision	1.75	0.70	
Perspective Taking scale	3.10	0.38	
Empathic Concern scale	3.00	0.51	
Maternal level ($n=1093$)			
Mother is Hispanic			19.5
Mother has HS diploma or GED			43.0
Mother is currently married			20.0
Child born premature (<37 weeks) and low birth weight			8.5
Child not premature but low birth weight			4.0
Child had no health risks at birth			87.5
Mothers age in years	20.35	4.43	

m mean, *SD* standard deviation, *HS, GED*

Next, bivariate analyses were used to identify home visitor attributes to include in the multivariate analysis. Mothers were significantly more likely to remain in the program for at least 1 year if their home visitor was Hispanic, had less than a bachelor's degree, and received more hours of monthly supervision. These three home visitor attributes were included as level-2 predictors in the initial HGLM multivariate analysis. Bivariate analyses showed that remaining in the OHS home visiting program at least 1 year was not significantly related to the home visitor's age, prior home visiting experience, or scores on the Perspective Taking or Empathic Concern scales. These home visitor attributes were excluded from the multivariate analysis.

Results indicated a significant community level effect on program retention. With every one-unit increase in the index of community violence, mothers were 14% less likely to remain in home visiting services at least 1 year. The odds of remaining in the OHS program for at least 1 year increased by 89% with every 1-hour increase in the amount of monthly supervision the home visitor received. In this multivariate analysis, remaining in home visiting services for at least 1 year was not significantly related to the home visitor's ethnicity or whether the visitor had a college degree (Table 7.4).

On the maternal level, the HGLM analysis revealed that Hispanic mothers were 48% more likely than non-Hispanic mothers to remain in the OHS program for at least 1 year. With every year of age, mothers were 4% more likely to remain in the OHS program (OR = 1.04, $p=0.01$). After considering the significant effects of community violence, home visitor supervision, and mother's age and ethnicity, results of the multilevel analysis showed that mother's marital status and infant health

Table 7.4 Retention study: Final hierarchical general linear model (HGLM) analysis of attributes effecting retention in a home-visiting program

	Coefficient	*t*-ratio	Odds-ratio	*p*-value
Community level ($n=12$)				
Community violence index	−0.14	−2.70	0.87	0.02
Home visitor level ($n=71$)				
Monthly hours of supervision	0.64	5.79	1.89	<0.001
Maternal level ($n=1093$)				
Mother is Hispanic	0.39	2.50	1.48	<0.01
Mothers age in years	0.04	2.76	1.04	<0.01

risks were not significantly related to remaining in home visiting services for 1 year or more. This model was used to examine all possible interactions within and across the three levels. There were no significant interactions.

Conclusion

Using different samples, these two studies sought to deepen our understanding of how multiple factors influence engagement and retention in home visiting child abuse prevention programs. These findings suggest that program engagement and retention are just as much a function of the community and provider as they are a function of the individuals receiving services. Community health and community violence should be considered when providing services. One method to address these issues is to promote family involvement in community health and safety organizations. Mothers who live in isolation may require additional efforts to secure their engagement in program services. Enlisting the support of other family members could enhance engagement. Providing home visitors with regular and ongoing supervision is crucial in increasing family retention. Supervisors should periodically shadow home visitors and provide visitors opportunities to discuss difficult cases. Regular supervision and ongoing staff training would promote a sense of value and reduce the likelihood of staff burnout.

Limitations

The findings are based on non-Hispanic (77%) and Hispanic (19.5%) families who received home visits in semirural and small metropolitan areas. Although this sample parallels the characteristics of many young Oregon families, future studies may wish to examine these relationships in a more ethnically diverse or urban sample. Moreover, although counties were a meaningful focus for these studies, future studies may wish to narrow their focus to attributes at the zip code, school district, or census block level. This would provide a more rigorous investigation of how

community violence influences retention rates and allow multiple community factors, such as social integration and social cohesion (McCurdy & Daro, 2001), to be included in the analyses. Despite these limitations, these studies illustrate the utility of considering community, home visitor, and maternal attributes when developing strategies for engaging and retaining families in home visiting child abuse prevention programs.

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