



Pathways to Resilience: Enhancing Family Well-Being with a Home Visitation Model

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Abstract: This paper highlights a study that examined outcome measures of a home visitation program, which provided services to first-born children and their parents living in Southwestern New Mexico. Home visitation workers conducted pre/posttest assessments for prenatal and postpartum periods for 109 families. The Revised North Carolina Family Assessment Scale measured family resilience. Paired sample *t* test and effect size analyses assessed for intervention effects. OLS regression measured effect of increased home visitation services on family well-being. Significant improvements with moderate to large effect sizes were observed for measures of social support, caregiver characteristics, family interaction, and a reduction in personal problems affecting parenting. These preliminary findings suggest that early intervention home visitation programs is an effective and acceptable method to enhance family well-being. Future directions could involve more comprehensive randomized controlled trials to examine the effectiveness of the group intervention. Practice implications are discussed.

Introduction

The benefits of early intervention and health promotion in maternal and child health are well known (de la Rosa, Perry, & Johnson, 2009; Guralnick, 1993; Kilburn, & Cannon, 2009; Reynolds, Temple, Robertson, & Mann, 2001; Simeonson, 1994; Thomas, Komiti, & Judd, 2014). In lieu of preventing the risk factors, proponents argue that the focus should be on minimizing or offsetting the consequences of risk chains. This primary prevention model dictates that service delivery be coordinated, family-centered and must be provided within community-based systems of care (Strickland, & McPherson, 1994; Goodson, Layzer, St. Pierre, et al., 2000). However, families at risk pose a challenge to social service providers because of barriers including poverty, violence, chaotic living conditions, and alienation from community health and social services (Ernst, Grant, Streissguth & Sampson, 1999; Kaplan, 1986). Moreover, the fragmented nature of service delivery systems often fails as a holistic approach to developing family well-being.

Home visitation programs continue to receive broad interest because of their ability to circumvent barriers to service usage. Namely, visiting families in their homes provides the home visitor with a natural opportunity to learn about a family's home environment, and enable the home visitor to gain a broader understanding of the home and neighborhood context affecting the family (Wasik, 1993; Weiss, 1993). Moreover, through individuation of service delivery, home visitors are able to tailor services to the specific circumstances of each family. Home visitors can reduce "no shows," while at the same time, assist families with completing referrals (Wagner, & Clayton, 1999). Most importantly, the delivery of social services in the client's home maximizes the opportunity to develop trust in the working relationship. It is through this positive professional relationship that client retention is maintained (Kaplan, 1986; Operhall, & de la Rosa, 2004).

This report presents outcome data of a home visitation program which targets families residing near the US/Mexico border. The First Born Program (FBP) was initiated to address the risk factors affecting child well-being. In 2011, New Mexico ranked 2nd in percentages of children living in poverty. Within the county:

- one in five babies born in Grant County, New Mexico is born to a teen; almost half the mothers are single parents;
- 23% of the parents have fewer than 12 years of education;
- 36% of the pregnant women receive inadequate or no prenatal care;
- only 74% of the infants obtained recommended immunizations by age 2 (New Mexico Department of Health, 2002).

The population characteristics of a high percent of births to adolescents and single parents with low levels of education are givens in this situation. The community also endures high unemployment (12.4%), and high poverty (27.3% of children below the age of 18 living in poverty). Moreover, the community has high percentage of minority ethnic groups, 49% Hispanic, and 14% Native American (Olson, 2003). However, many risks (e.g. delayed prenatal care and lack of immunizations) are considered preventable by intervention during pregnancy and in the first three years of a child's life (Campbell, 1994; Ernst, Grant, Streissguth, & Sampson, 1999; Navaie-Waliser, et al., 2000; Slaughter, & Issel, 2012).

The program planners thus sought a model that offered promise on the premise that the earlier the interventions in the life of the child, the greater are the positive effects. Evidence based

practice suggest that early intervention promotes positive early parenting behavior and parent-child attachments patterns (Lyons, 1996; Lyons-Ruth, Alpen, & Repacholi, 1993; Lyons-Ruth, Easterbrooks, & Cibelli, 1997). Substantial empirical literature supports the link between early intervention and later problem behavior (Baron, & Kenny, 1986; Lyons-Ruth, & Easterbrooks, 2006). A second important premise underlying program intervention focuses on the therapeutic aspect of didactic relationship that is developed in-home visitation. Numerous researchers point that the relationship between the home visitor and the mother serves as a “parallel process” to help the mother interact better with her infant (Ammaniti, et al. 2006; Lyons-Ruth, et al. 1990; Olds, et al. 1997; Sadler, Slade, & Mayers, 2006; Stern, 2006; Zeanah, et al. 2006).

In an effort to answer the question, “Does our intervention program have an impact on the lives of the mothers and children” program planners determined that key outcomes would include:

- positive interaction between parent and child
- positive parenting behaviors; increased factual knowledge about pregnancy, delivery, and child health
- knowledge about the effects of alcohol, tobacco and other drugs
- decreased risky behaviors on the part of the parent

This evaluative research study reports on program’s effort to (a) conceptualize qualities of enhanced family functioning and resilience capacity, and (b) report program outcomes.

Previous Research Related to Two Generation and Home Visiting Programs

Definition of Home Visiting

Home visiting is a widely used strategy for service delivery in a variety of health and human service programs (Gomby, Larson, Lewit, & Behrman, 1993; Gomby, Culross, & Behrman, 1999). Home visiting programs are programs that provide voluntary, family-focused services in the family’s primary residence and can provide services which address health, social service, or educational needs, although the program generally has one primary service orientation. Whether the program uses a set curriculum or plans the number of visits based on family needs, services promote eventual self-sufficiency. These services are provided by a trained home visitor, who forms a professional, supportive relationship with the family and acts as a resource person, providing referrals to address the family’s health and social service needs (Operhall, & de la Rosa, 2004).

Encompassed within this definition, two generation programs are contrasted to other early intervention approaches that have a single focus such as early childhood education, parenting education, or parent economic development activities (St. Pierre, Layzer, & Barnes, 1995). The concept of a two generation program is that a program aims to promote parent development as well as child development.

The evidence regarding the effectiveness of two generation and home visiting programs is mixed. In a review of six large or multi-site two generation programs, St. Pierre, et al., (1995) concluded that two generation programs were modestly effective in increasing the participation of parents and children in social and educational services, in producing short-term effects on child development, and some short-term effects on parenting behaviors and attitudes. However, these programs had few effects on parents’ income, employment, or psychological status. When positive effects were demonstrated, the effects were generally small.

Similarly, home visiting programs have demonstrated only modest benefits (Constantino, et al., 2001; Gomby, 2000; Gomby, Culross, & Behrman, 1999; Olds, & Kitzman, 1993); with the greatest impact on programs directed toward reduction of child maltreatment (Bugental, et al., 2002; Cerney, & Inouye, 2001; Chambliss, 2000; Eckenrode, et al., 2000; Nelson, Laurendeau, Chamberland, 2001; Olds, et al., 1998; Ravello, 2000). This variation in program results is thought to be due, in part, to the great diversity among programs in terms of goals, staffing (Vogler, et al., 2002), frequency of visits (Ernst, et al., 1999; MacLeod, & Nelson, 2000), population served (Navaie, 2000); and, in part, to inconsistent or incomplete implementation of the planned interventions (Drummond, Weir, & Kysela, 2002; Eckenrode, et al., 2000; Gomby, et al., 1993; Gomby, et al., 1999; Hammond Ratzlaff, & Fulton, 2001; Keim, 1999; Koniak-Griffin, et al., 2000; McCurdy, 2001; Olds, & Kitzman, 1993; Pratt, McGuigan, & Katzev, 2000; Wasik, 1993; Weiss, 1993). Despite less than strong evidence about the effectiveness of home-visitation or two-generation programs, researchers and program planners continue to see potential value in these early intervention approaches (Gomby, et al., 1999; Olds, & Kitzman, 1993; St. Pierre, et al., 1995; Weiss, 1993).

Gomby, et al., (1999) explained the continued support for such programs on the basis of the apparent hunger parents have for information and support (as evidenced by the popularity of parenting books, magazines, and videos), and on the basis of current research regarding the critical importance of children's earliest years for development of cognitive and social abilities. Ultimately, what is effective intervention may not depend so much on a particular model, but on an understanding of a particular target population, in a particular place (Schorr, 1991; Olds, & Kitzman, 1993).

Conceptual Frameworks

Based on the review of existing program models and research findings, and utilizing their own knowledge of the unique qualities of their community, the staff of the First Born Program identified theories of self-efficacy and empowerment, human ecology, attachment and Resilience as guiding frameworks. To promote child and family well-being, program administrators believed that family education, use of screening tools to identify problems and make referrals, and the coordination of community resources were key to program success. Together, these theories and approach suggest that behavior change is a function of a family's social context as well as an individual's beliefs, motivations, and emotions (Bronfenbrenner, 1979; Kilburn, & Cannon, 2011; Morris, Silk, Steinberg, Myers, & Robinson, 2007). To be effective, the intervention program would need to influence parental beliefs and attitudes and an array of factors that constitute the social and family environment.

Family Resilience

As the planners considered the need to improve child and family outcomes in the face of the many risk factors, they looked to resiliency theory to understand factors that promote and protect well-being in the face of adverse conditions and stress. Stressors immobilizes the family unit, rendering it incapable of completing the necessary developmental task for proper system functioning and healthy progression through family life cycles (Carter, & McGoldrick, 1988). Meanwhile, protective processes permit individuals to demonstrate positive psychological adjustments and the ability to thrive, mature and increase competence (Garmezy, 1991; Rutter, 1987).

Resilience has been defined as the capacity to, "restore or maintain internal or external equilibrium under significant threat by means of human activities including thought and action" (Masten, Best, & Garmezy, 1991, p.430). The key properties of resiliency entail coping,

endurance, and survival (McCubbin, et al., 1993). As a result, resilience research (Garmezy, Masten, & Tellegen, 1984; Rutter, 1985; Werner, & Smith, 1992) identifies qualities, protective factors or processes that moderate the relationship between stress/risk and coping (Smith, & Carlson, 1997).

Resilience theory sheds light on developing parent-child interaction. Numerous authors argue that maintenance of family rituals, proactive confrontation of problems, minimal home-based conflict during infancy, and strong parent-child relationships are a characteristic of resilient families (Bernard, 1994; Hawley, & DeHaan, 1996). Snow, Pan and Ayoub (2002) point to the parent's ability to maintain emotional stability and success in interpersonal relationships and positive relationships between parent and child, within the family and with the community. Research indicates that these relational strengths have the potential to offset factors that might promote abusive or stressful parenting (depression, distress, and loneliness).

Intervention strategies that promote resilience include the use of a family goal setting system, regular follow up, and reassessment. Within this framework, the FBP endeavored to enhance familial dynamics that promote and strengthen family resilience. Research related to risk and protective factors affecting child's development and mother's life course was also reviewed (see de la Rosa, et al., 2005 for detailed discussion). For their efforts, in 2002, the program was named one of the nation's 10 Most Innovative and Exemplary Prevention Programs by the Substance Abuse and Mental Health Services Administration (SAMHSA), Center for Substance Abuse prevention (CSAP) and other collaborative agencies.

The outcome program evaluation study was designed to measure the client's behavior change as result of the intervention in areas corresponding to the conceptual framework. Primarily the outcome evaluation focused on change in four dimensions: social support, caregiver (behaviors) characteristics, personal problems affecting parenting, and family interactions.

Methodology

Participants

The study utilized a non-probability purposive convenience sample comprised of families participating in the FBP home visitation services. Clients were eligible to receive home visitation services if they were county residents, and were expecting their first child. As such, clients were referred into the program from numerous community sources including: high school counselors, juvenile parole and probation officers, border mental health agencies, medical community (i.e. county hospital, obstetrical/gynecological providers, midwives and family practitioners), public health department, self referrals, as well as agencies providing services to runaway/homeless children.

A total of 116 families had a complete pretest and posttest assessment (completed by their home visitor) between 2001 and 2003. This time period was selected because it was the earliest period within the history of the program with a sufficient sample size for inferential analysis. Approximately five families were offered services within this study period, but were excluded from analysis because they declined service or discontinued service within the first three months of service initiation. There was no significant difference in mother's age, ethnicity or eligibility for Medicaid status between participant and nonparticipants. As a result, 109 families were selected for analyses.

At initiation of services, all clients were informed about the evaluation of the program, and that as part of the study, their records would be used to assess program effectiveness. All clients signed voluntary consent forms indicating consent to participate in the evaluation study. Every effort was made to minimize risk to study participants, including ensuring confidentiality by coding all identifiable information. Moreover, data was stored in a secure location accessible only to the program director and evaluator. The research protocol was reviewed and approved by a formal University Institutional Review Board.

Sample Characteristics

Table 1. shows the sample selected characteristics of the study. Although a majority of women enter the First Born program in their twenties, an unexpected, substantial portion (31.2%) of mothers are pregnant in their teen years. Similarly, the majority of mothers entering the program are single or separated (50.5%). Using Medicaid eligibility requirements as a proxy for socio-economic status, the majority of program participants meet the federal poverty guidelines, as 83.5% meet or exceed the Medicaid eligibility requirements. The table also suggests that although the majority of mothers in the program are poor (83.5%), single (50.5%) and Hispanic (57.1%), the majority have at least a high school degree (43.0%). As indicated in Table 3, the average number of total contact hours between client and home visitor was 43.8, with a range from 5 to 103 hours. The mean length of service during prenatal period was 102 days, with a range of 10 to 237 days. The mean length of service during the postpartum period was 403 days, with a range of 41 to 1095 days.

Table 1

Characteristics of the 109 Subjects who enrolled in the First Born Program (FBP), 2001-2003

Characteristics	N(%)
<i>Gender</i>	
Female	109(99.1)
<i>Age</i>	
14-19	34(31.2)
20-29	58(53.2)
30-39	14(12.8)
40 and over	3(2.8)
<i>Marital Status</i>	
Single	53(50.5)
Separated	32(9.0)
Married	40(38.1)
Co-habiting	
<i>Ethnic</i>	
Anglo	38(34.9)
Hispanic	60(57.1)
Black	1(1.0)
Mixed Ethnic	5(4.8)
<i>Education</i>	
Some HS	24(24.0)
HS Grad	43(43.0)
College	33(33.0)
<i>Medicaid Eligible</i>	
Yes	91(83.5)
<i>Contact Hours</i>	44(43.8)
<i>Length of Service (days)</i>	
Prenatal	53(102)
Postpartum	50(403)

Program Design

Based on the theory of change identified, the First Born Program utilized a two-generation, home visitation approach for service delivery. All families in the County with a first born child expected or recently born are the designated target. This target population was selected as a first level effort that would aim to intervene in a timely manner and shape future parenting behaviors and child outcomes.

The program is a department of a county operated regional health center facility. This relationship with the hospital creates the unique opportunity to initiate services with mothers at the time of hospitalization or delivery if the family has not already been offered the program services. It also facilitates contact with the mother and child during the immediate postpartum period.

The program employs multi-cultural and multi-lingual staff to serve a variety of cultural and language groups represented in the population. Direct services are provided by a team of home visitors that includes a combination of master level professionals trained in nursing, education,

and counseling, and para-professionals working as promotores/as. One strength of this model is that it does not rely on professional registered nurses. They are included in the team, but the majority of home visiting is done by promotores/as who receive on-the-job training. The utilization of promotores/as, i.e. community health workers, is a unique aspect of the program. As such, promotores/as represent a "natural helper" who is an indigenous community member to whom clients naturally turn for help. This natural helper status captures the dynamic that service provision by promotores/as operates within a context of existing relationships and indigenous social networks (May, 2008; Patterson, 1977). The staff believes that the combination of their varied expertise helps make the program responsive to the variety of clients and needs presented.

All home visitors receive a core training prior to service initiation. The training involves local community service providers (e.g. counselors, teachers, domestic violence and homeless service providers, health educators) in providing specific training components (First Born Program, 2015). Use of the local experts serves several purposes including helping the program be highly relevant to the community-enhanced coordination of services. Core training components include: mission statement and core values; communication and relationship building skills; managing home visits; program documentation; safety issues, prenatal curricula; postpartum curricula; breastfeeding; immunizations; medical issues; infant growth and development; mental health issues (e.g., depression); substance use/abuse; family planning/sexuality issues; domestic violence; child abuse and neglect issues; community resources; hospital orientation; and CPR certification. Each home visitor also receives individual weekly supervision from the program director and participates in a weekly staffing of client cases. The use of reflective supervision is a key element to program fidelity. One-on-one reflective supervision sessions focuses on staff's professional development by using supervisory meetings as a opportunity to scaffold, or support the acquisition of new knowledge and contributes to home visitors' feeling of safe -- that they have place to go to reflect. The program director encourages the home visitor to analyze their own work and its implications. Reflection is important because it empowers staff to assess their own performance. Awareness of one's strengths, as well as one's limits and vulnerabilities, allows individuals to make mid-course corrections in work performance that feel natural, unforced, and generated from within (Duthie, Hahn, Philippi, & Sanchez, 2013; Parlakian, 2001).

Intervention

Following the programs design and training modules, home-visitors of the FBP provide weekly to bi-weekly face-to-face direct family contact, averaging 45 minutes per contact. Each service plan is individualized based on the family's input through several documents (i.e. initial focus checklist, NCFAS assessment and discussion between the family and home visitor.) Services may begin any time during pregnancy and may continue until the baby is 36 months of age, until services are no longer requested, or family goals are achieved. Progress on family goals and objectives is reviewed quarterly with the family and the service plan is updated based on the outcomes of the review.

At each home visit, FBP home-visitors implement general and specific program protocols. A set of key topics have been developed with a corresponding set of questions that address a program area, information to be shared by the home visitor, and activities for the parent (or parent and child) that apply the information shared or practice a skill (de la Rosa, et al., 2009).

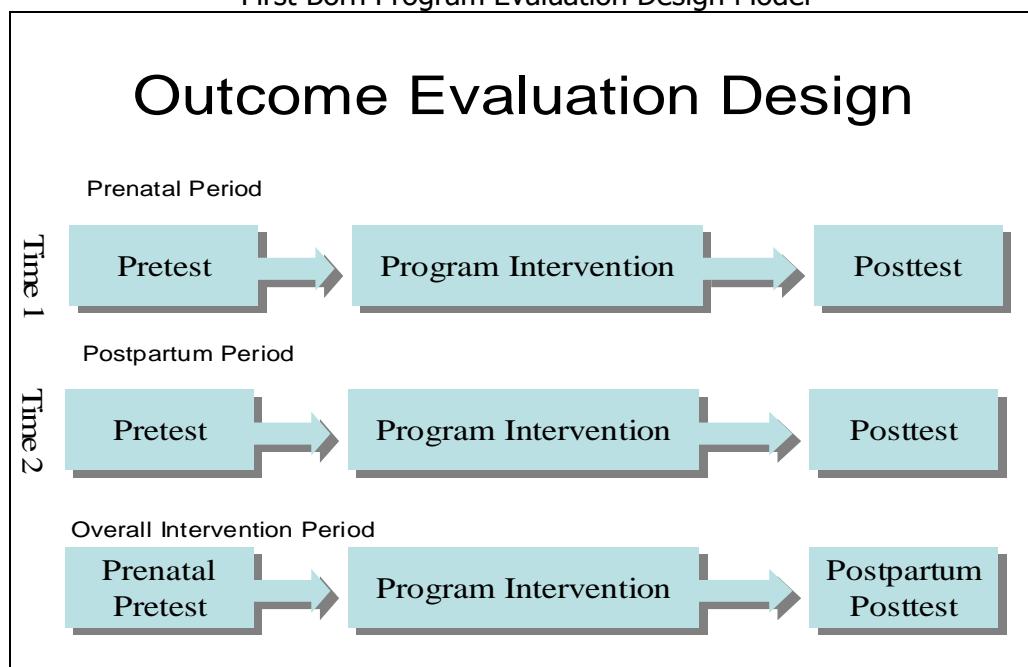
Interventions with infants include a referral to "medical home." FBP home-visitors coordinated services with each child's medical provider(s) to ensure that the child receives immunizations and well baby checks on a scheduled basis. FBP home-visitors monitor development of children

receiving Program services, using the Brigance Diagnostic Inventory of Early Development (BDIED) (Plake, Impara, & Spies, 2003), and refer children not developing within expected norms to appropriate resources (e.g., providing a summary of Inventory results to each child's medical provider(s)).

Evaluation Procedure

The evaluation research design consists of a pre-experimental one-group pretest/posttest model. The FBP evaluation design is depicted in Figure 1. Home visitors assessed clients at four different times (pretest/posttest during prenatal period and pretest/posttest during postpartum period). Therefore, all measures are collected from the same clients, but at different time points.

Figure 1
First Born Program Evaluation Design Model



Note: Only data from the prenatal and postpartum periods are presented in this study.

Measures

A revised version of the North Carolina Family Assessment Scale (NCFAS) evaluated the outcome objectives and overall program ability to develop and promote family resilience capacity. The revised (NCFAS) was adopted as the main evaluation tool, because it is a multidimensional/ecological assessment of family well-being (Reed-Ashcraft, Kirk, & Fraser, 2001). The revised NCFAS consisted of 42 items organized within seven domains: (1) family environment, (2) social support, (3) service utilization, (4) caregiver characteristics, (5) personal problems affecting parenting or pregnancy, (6) family interactions and (7) child well-being.

The NCFAS utilizes a 6-point ordinal scale, with scale values of 2 (clear strength), 1 (mild strength), 0 (baseline/adequate), -1 (mild challenge), -2 (moderate challenge) and -3 (serious challenge). The instrument was designed to assess the influence of physical environment, as well as psychosocial and alcohol, tobacco and drug use on parenting and family functioning.

Using an ecological approach, the instrument is well suited to monitor the effectiveness of home visitation services by taking into account the multiplicity of social factors that influence a family's well-being during the perinatal and toddler periods (Reed-Ashcraft, Kirk, & Fraser, 2001). Moreover, the instrument operationalizes essential concepts within the family resilience framework. Namely, the instrument measures parental substance abuse, family relations, past history of parental physical and sexual abuse, social support, family bonding, family's link to social and community prevention services as well as parental perinatal knowledge. The domains and subscale items are presented in Figure 2.

Figure 2
Operational Measures of Family Resilience



The rating guide in Table 2 consists of definitions of a continuum of key concepts or scenarios that correspond to a given score. Home visitors were trained to match these key concepts or scenarios that best correspond to the situation of the family they are rating, and assign the appropriate number (+2 to -3).

Table 2
Sample NCFAS rating guide for Social Support domain

+2*	+1	0	-1	-2	-3
B1. Emotional Support Family has frequent interactions with relatives/neighbors/friends which provide companionship, friendship, recreation, problem solving, and encouragement. These interactions are a positive influence for the family. Family/parent has one or more close friends in whom to confide.		Refers to family having some interaction w/ relatives/neighbors/friends. These groups provide primarily positive influences on the family, though not necessarily always positive.			Refers to family being socially isolated, and having no or little contact with relatives, neighbors, friends, or others. Extended family and/or neighbors are a negative influence, and are more trouble than help.
B2. Material Support Refers to family's ability to identify and access multiple/reliable informal resources (friends, neighbors, relatives, etc.) to provide assistance with food, clothing, shelter, utilities, etc.		Refers to family's ability to identify and access some informal resources (friends, neighbors, relatives, etc.) to provide assistance with food, clothing, shelter, utilities, etc.			Refers to family's marked lack of ability to identify and access any informal resources (friends, neighbors, relatives, etc.) to provide assistance with food, clothing, shelter, utilities, etc.
B3. Personal Support Refers to family's/caretaker's ability to identify and access multiple/reliable informal resources (friends, neighbors, relatives, etc.) to provide assistance with child care, transportation, meal preparation, housework, home repairs, etc.		Refers to family's ability to identify and access some informal resources (friends, neighbors, relatives, etc.) to provide assistance with child care, transportation, meal preparation, housework, home repairs, etc.			Refers to family's marked lack of ability to identify and access any informal resources (friends, neighbors, relatives, etc.) to provide assistance with child care, transportation, meal preparation, housework, home repairs, etc.
B4. Community Connections Refers to family's regular contact with neighborhood, religious &/or civic organizations. Caregiver takes a leadership role and frequently volunteers to help those organizations.		Refers to family's occasional contact with neighbors, religious &/or civic organizations. Caregiver will occasionally volunteer to help if asked by those organizations.			Refers to family's complete lack of contact with neighbors, religious &/or civic organizations. Caregiver is unwilling to volunteer to help, even when asked by those organizations.

*+2=clear Strength; +1=Mild strength; 0=baseline/average; -1=Mild Challenge; -2=Moderate Challenge;
-3=Serious Challenge

Reed-Ashcraft, et al., (2001) found a split-half reliability alpha coefficient of at least .70 for four of the original NCFAS domains (environment, child well-being, family interactions, and family safety). The same study also found high convergent and concurrent instrument validity with a Cronbach's alpha of at least 0.76 across all domains.

Several attempts have been made to use NCFAS in applied research. In unpublished data, Kirk & Fraser (2002) used the NCFAS (version 2) to examine 523 pre/posttest assessment outcome data of intensive family preservation services in North Carolina. Researchers found significant

improvement in family interaction ($\chi^2=47.57$, df=5, p<0.001), parental capabilities ($\chi^2=27.35$, df=5, p<0.001), family safety ($\chi^2=46.70$, df=5, p<0.001), and child well-being ($\chi^2=58.61$, df=5, p<0.001). Authors also found significant positive relationship between NCFAS score and absence of placement, problems, and out of home placements. The authors examined the concurrent and predictive validity of the NCFAS in relation to placement prevention and future placement among families receiving Intensive Family Preservation Services (IFPS). In a sample of 1,279 families referred to IFPS by county departments, the authors found high Cronbach's alpha for reliability (.72 to .91), and ratings in the strength ranges of the NCFAS at closure were significantly associated with non-placement at the end of service and at one year for each domain (concurrent validity, p <.001), while ratings in the problem ranges were significantly associated with placement (predictive validity, p< .001). Consistent with these findings, Valencia and Gomez (2010) found good internal validity (Cronbach's alpha ranged between .78 to .89) on a sample of 591 at risk Latin American youth.

Every effort was made to maximize the internal validity of the instrument. Home visitors assessed each family for all pretest and posttest measures. Case record data, as well as home visitor's knowledge about the family were used to rate each family. However, this data collection methods may introduce an element of rater bias – practitioners are vested in demonstrating improvement in outcomes. The researcher and program manager attempted to minimize rater bias through multiple training sessions in the use of NCFAS instrument, auditing of case records, and ongoing staff meeting to ensure uniformity in use of the instrument. Ongoing training by the evaluator emphasized the need for uniform rating schemas across all raters, as well as that each rating should be based on concrete evidence that is documented in case record or information that is shared in case staffing. The program manager monitored all case files to ensure that the rating choices are justifiably documented in each case files. In addition, the program manager utilized weekly case staffing as well as individual consultations with each home visitor to discuss issues related to NCFAS assessments.

Analysis

Paired sample t test analysis (with alpha set at p<0.05) of the NCFAS data was completed on program participants who received services between January 2001 and June 2003. All analysis was conducted on two separate groups: (1) families who completed pretest/posttest in the prenatal period (n=56), and (2) families who completed pretest/posttest in the postpartum period (n=58). Of the total sample, 31.2% (n=34) of the families received home visitation services in the prenatal and postpartum periods, and analysis for these families were separated into the prenatal and postpartum periods. The separation of analysis into separate subgroups was necessary because of the variations in how clients enter the program (e.g. some families enter the program after delivery of child, while others terminate services once the child is delivered). Moreover, separating analysis into periods allows for examination of how clients improved at different stages of family development.

For ease of analysis and interpretation, the NCFAS rating system was recoded so that higher scores signify a better outcome: 0 (serious challenge), 1 (moderate challenge), 2 (mild challenge), 3 (baseline/average), 4 (mild strength), 5 (clear strength). Effect size was used to assess practical significance in scores at posttest, relative to pretest (Cohen, 1988; Rosnow, & Rosenthal, 1996). The Effect size was calculated by dividing the mean difference in scores by the posttest standard deviation. An effect size of 0.5 or larger was taken to indicate a practical significant difference between the pre and posttests. Using GPower to conduct a post hoc power analysis of matched paired t test analysis found that the sample size required for an

alpha of 0.05 and a power of 0.96 with an average composite item effect size score of 1.01 is 56 cases per group (Erdfelder, Faul, & Buchner, 1996). Although all items of the NCFAS measure varying aspects of resiliency, analysis focused on 4 main subscales (i.e. social support, caregiver characteristics, personal problems affecting parenting, and family interactions) because they correspond conceptually to aspects of resilience, as well as they are closely linked to the program goal and theoretical framework.

Results

Outcome measurements

Social support

All items for the sub-scale of social support were found to be significantly associated (at $p<0.000$) with an improved posttest score. These outcomes are consistent with the hypothesis, that FBP participants will demonstrate an improvement in positive family interaction. For example, during the prenatal period, Table 4, the emotional support improved significantly ($t(55)=-7.10$, $p<0.000$, $ES=0.75$) between pretest and posttest assessments. This suggests that mothers were more likely to have some positive interaction with relatives, neighbors and friends as compared to their initial pretest assessment. Mothers assessed for emotional support during the postpartum period, Table 5, demonstrated an improvement ($t(57)=-9.14$, $p<0.000$, $ES=1.36$) between pretest and posttest scores. Home visitors reported significant improvement in indicators of marital support between the pretest and posttest prenatal scores ($t(54)=-6.51$, $p<0.000$, $ES=0.55$). This suggest that according to home visitors, family assessments at the prenatal posttest period were more able to identify and access some informal resources (friends, neighbors, relatives, etc.) to provide assistance with food, clothing, shelter, utilities as compared to the prenatal pretest assessments.

Table 3
Results of Paired *t* Test of Outcome Measurements for Prenatal Period

Performance Measure(n)	Pretest Scores			Posttest Scores					
	M	SD	M		SD	t	df	Sig.	ES ^a
Social Support									
Emotional support(56)	2.00	0.99	2.79	1.05	-7.10	55	.000	0.75	
Marital support(56)	2.49	1.18	3.06	1.04	-6.51	54	.000	0.55	
Personal support(55)	2.43	1.18	2.88	1.08	-5.66	54	.000	0.42	
Community Connection(56)	2.07	1.09	2.86	1.09	-8.57	55	.000	0.15	
Caregiver Characteristics									
Perception of child(55)	2.28	0.85	3.04	0.98	-6.28	54	.000	0.78	
Personal Problems Affecting Parenting									
Mental health(54)	2.37	0.96	2.80	0.80	-4.42	53	.000	0.54	
Substance abuse(20)	2.32	1.39	2.81	0.87	-2.70	19	.014	0.56	
Physical history(54)	2.44	0.93	2.96	0.81	-5.69	53	.000	0.64	
History of abuse(12)	2.06	1.39	2.60	1.18	-3.46	11	.005	0.46	
Family Environment									
Marital relationships(54)	1.90	1.24	2.40	1.24	-4.26	53	.000	0.40	
Mutual support(55)	2.25	1.21	2.75	1.11	-4.86	54	.000	0.45	
Male involvement(19)	2.30	1.60	2.68	1.28	-2.97	18	.008	0.30	
Family violence(22)	3.04	1.34	3.57	0.99	-2.41	21	.025	0.56	

Note: Scale items not applicable during prenatal period are not included. ^aES=Effect Size, calculated as the pretest/posttest difference, divided by posttest standard deviation.

Table 4Results of Paired *t* Test of Outcome Measurements for Postpartum Period^a

	Pretest Scores		Posttest Scores					
Performance Measure(n)	M	SD	M	SD	t	df	Sig.	ES ^a
Social Support								
Emotional support(58)	2.63	1.09	3.91	0.94	-9.14	57	.000	1.36
Marital support(57)	3.14	0.92	3.89	0.88	-7.61	56	.000	0.85
Personal support(58)	2.92	1.07	4.00	1.01	-8.83	57	.000	1.07
Community Connection(58)	2.79	1.05	4.02	1.00	-8.24	57	.000	1.23
Caregiver Characteristics								
Parenting skills(58)	2.22	0.98	4.34	0.74	-14.50	57	.000	2.86
Parental supervision(58)	2.39	0.94	4.28	0.77	-12.86	57	.000	2.45
Developmental expectations(56)	2.19	0.84	4.39	0.73	-15.68	55	.000	3.01
Perception of child(58)	2.81	0.97	4.57	0.57	-11.57	57	.000	3.09
Incidents of abuse/neglect (52)	3.03	0.53	3.90	0.85	-6.62	51	.000	1.02
Personal problems affecting parenting								
Mental health(58)	2.64	0.99	3.98	0.83	-8.57	57	.000	1.61
Substance abuse(21)	2.57	1.03	3.88	1.08	-5.12	20	.000	1.21
Physical history(58)	2.89	0.98	4.07	0.81	-8.73	57	.000	1.46
History of abuse(15)	2.48	1.25	3.81	0.83	-3.66	14	.003	1.60
Family Interactions								
Bonding w/child(58)	2.42	0.88	4.50	0.57	-16.13	57	.000	3.65
Interaction w/child(58)	2.31	0.88	4.47	0.65	-16.89	57	.000	3.32
Marital relationships(57)	2.29	1.19	3.63	1.20	-9.20	56	.000	1.12
Mutual support(58)	2.79	1.16	3.81	1.16	-9.25	57	.000	0.88
Male involvement(58)	2.61	1.23	3.86	1.32	-9.14	57	.000	0.95
Family violence(29)	3.24	0.99	3.80	0.81	-3.09	28	.005	0.69

^aES=Effect Size, calculated as the pretest/posttest difference, divided by posttest standard deviation.

Overall, we see that although many mothers receiving FBP services initially were rated to be experiencing some difficulties in indicators of social support, (1) their ability and capacity to engage other family members in emotional, and (2) material support and their (3) connection to their community improved between pretest and posttest measures. This trend independently holds true for each reporting prenatal and postpartum periods.

Caregiver Characteristics

FBP participants significantly improved their positive perception of the child ($t(54)=-6.28$, $p<0.000$, $ES=0.78$) between the prenatal pretest and posttest assessments. This significant relationship suggests that mothers learned to perceive the unborn infant as primarily positive in lieu of perceiving the child as a burden. For postpartum period, all items indicate a significant improvement ($p<0.000$) between pretest and posttest score. Most notable is the significant improvement in parenting skills ($t(57)=14.50$, $p<0.000$, $ES=2.86$), where at posttest assessment, as compared to pretest, caregivers demonstrated the ability to respond to child's need, and provide adequate guidance and discipline.

Personal Problems Affecting Parenting

With an average pretest score ranging between 2.48 to 2.89, mothers entered the FBP with mental health issues that occasionally inhibit care-taking tasks but that did not dramatically affect parenting. However, at prenatal posttest assessment, many of these mothers had learned how to access appropriate resources when needed and existing mental health problems tended not to interfere with parenting ($t(53)=-4.42$, $p<0.000$, $ES=0.54$). In terms of substance abuse during the prenatal period, a small sample ($n=21$) was rated positive for this category. Caseworkers found that mothers showed a significant improvement at posttest assessment, as compared to pretest, in that current or past substance abuse is/was occasionally excessive, although parenting was not considerably affected ($t(19)=-2.70$, $p<0.014$, $ES=0.56$). This finding must be taken with caution, given the small number of families assessed for this outcome. However, given that the effect size is unaffected by the size of the sample, an effect size of 0.56 meets the practical significance criteria, and suggests a meaningful difference was achieved between the pretest and posttest means. Substance abuse for the postpartum period significantly improved at posttest assessment ($t(20)=-5.12$, $p<.000$, $ES=1.21$), as compared to pretest measures. This significant improvement suggests that current substance abuse is no longer excessive or that the abusive behavior has been eliminated. Moreover, past substance abuse problems have been successfully addressed, and abuse treatment has positively impacted parenting.

Family Interactions

As expected, families receiving FBP home visitation services significantly improved their level of family functioning from the pretest to posttest assessment for both prenatal and postpartum periods. Pre and posttest assessments during prenatal period indicate significant positive improvements in all four measured outcomes of marital relationships, mutual support, and male involvement during pregnancy and reduction in family violence. However, the effect size indicators suggest that although statistical significance ($p<0.000$) was achieved at posttest assessments, the practical significance in the standard deviation between the means of the pre/post tests is minimal. The only notable exception was found in family violence, where an effect size of 0.56 was achieved. For the postpartum period, home visitor rating suggest that at posttest assessment many families experienced improved scores in indicators of parental/child bonding, improved positive parental/child interaction, as well as marital/partner communication, mutual support and male involvement, as compared to scores during the pretest assessments.

Especially important in the development of family resilience capacity is the cultivation of positive bonding between caregivers and child. A significant improvement in pre and posttest scores in indicators of bonding with child during postpartum period ($t(57)=-16.13$, $p<0.000$, ES=3.65) implies caregivers' attachment with their child, and their ability to nurture a child were enhanced. Moreover, home visitors reported that at posttest assessment caretakers tended to encourage appropriate child independence, and gave love and attention freely to the child, as compared to pretest assessments. In addition, home visitors reported that at posttest assessments caregivers more consistently responded to child's needs appropriately, and demonstrated a sense of attachment to the child, as compared to pretest assessment. Similarly, a significant positive improvement was found between pre and posttest assessments with interaction/communication with child ($t(57)=-16.90$, $p<0.000$, ES=3.32). Posttest assessment ratings reveal that caregivers tended to "read" baby's expressions, reactions, behaviors and respond appropriately, as compared to pretest assessment. Similarly, caregivers, at posttest assessments, also tended to engage in reciprocal interactions with baby and the tempo of interactions tended in synchrony with baby.

Variation in program exposure

Multivariate regression analyses were used to control for socio-demographic characteristics that may be related to observed outcome. Table 5 shows the unstandardized regression coefficients (standard error) for the association of caregiver, family interaction, personal problems affecting parenting and social support characteristics with number of contact hours. The dependent variable, number of contact hours, measures the total number of face to face contact hours each home visitors dedicated to each family at case closure. The number of contact hours ranged between 5 and 103 hours, with an average score of 43.84 (SD=33.23). OLS regression analyses indicates that number of contact hours significantly predicts caregiver characteristics ($p<.001$), family interaction ($p<0.05$), personal problems affecting pregnancy ($p<0.05$), and social support of caregivers ($p<0.01$) after adjusting for socio-demographic factors. In each model, increased contact between the home visitor and client is associated with improved outcome.

Table 5

The unstandardized regression coefficients (Standard Error) for the association of caregiver, family interaction, personal problems affecting parenting, and social support characteristics with number of contacts

Outcomes				
	Caregiver	Family Interaction	Personal Problems	Social Support
Number of Contacts	0.09(0.02)***	0.05(0.02)*	0.04(0.02)*	0.06(0.02)**
Age	0.11(0.13)	0.23(0.14)	0.20(0.02)	0.16(0.10)
Marital Status	-.055(0.59)	0.29(0.65)	-0.34(0.56)	0.20(0.45)
Highest Grade	0.37(0.39)	-0.20(0.43)	-0.25(0.37)	0.27(0.30)
Medicaid Eligible	-3.61(2.14)	-0.18(2.39)	1.45(2.03)	-1.36(1.66)
Intercept	1.985	3.898	-0.275	-3.893
R Square	.455	.237	.261	.483

* $p<.05$; ** $p<.001$

Discussion and Application to Practice

Summary

The results of this exploratory evaluation study are promising. Many of the items that operationalize family well-being reveal significant positive posttest improvements, as compared to pretest assessments. First, mothers' ability and capacity to engage other family members in emotional and material support and their connection to their community during the prenatal and postpartum period significantly improved. Second, caregiver characteristics that promote a positive environment for infant development improved between pre and posttest assessments. Compared to pretest baseline levels, at posttest assessment mothers developed positive perception of their unborn child, and after delivery these same parents improved their parenting skills and became more responsive to their child's needs. Third, personal problems affecting pregnancy were significantly reduced between the pretest and posttest assessments. For those few families who entered the program experiencing problems with mental health, substance abuse, or history of abuse, the posttest assessment by home visitors suggest a significant improvement. Finally, when comparing pre and posttest scores, many families experienced enhanced parent/child bonding, improved positive parent/child interaction, as well as marital or partner communication, mutual support and male involvement during the postpartum period.

Implication for Practice

The findings of this study reaffirm an essential theme: the provision of social services to families must begin with a focus on identifying the needs of the client system, and ensuring that intervention is tailored to address this need. Moreover, this exploratory evaluation study exemplifies a practice-to-science model where the collaborative effort between the practitioners and researcher use evidence based principles to assess program effectiveness. The expertise of the practitioners, and detailed knowledge of the target population and their need, represent the foundation on which the researcher can meticulously identify desired outcomes, monitor the means of achieving them, and provide feedback to program planners of the effectiveness of intervention efforts. Such an interactive model embodies the principles of a research theory of change (Anderson, 2005; Connell, 2003; Harrington, Perez-Johnson, Meckstroth, & Love, 2003). Although data for this study comes from: a) a program with limited funding; b) non-experimental evaluation research design; c) small sample size; and d) clients who reside in a rural isolated community, the lessons learned here may provide a guide to actions and management with other initiatives and program replication (Chinman, et al., 2014; Kilburn, 2012; Kilburn, & Cannon, 2011). The success of this program supports Schorr (1991) and Schorr and Both (1991) argument that the ability of programs to adapt the content of their services to the distinctive needs of the population being served is the distinguishing feature of more effective programs. Moreover, results indicate that increased service is associated with enhanced family well-being.

Limitations

Limitations of the study must be kept in mind when interpreting results. This was a small, nonprobability sample study using a pre-experimental one-group pretest/posttest model with no control or comparison group to truly assess cause and effect relationships. Moreover, the generalizability of the sample is limited. The study was conducted with predominantly Mexican American clients residing in a rural community near the US/Mexico border. Finally, because the data collection methods involved home visitor workers in assessing family well-being on the NCFAS, the possibility of rater subjectivity cannot be excluded. Despite the element of rater bias, the use of the NCFAS for assessment was a practical and useful process for identifying family goals and focusing the intervention work. It captured many of the key outcome

elements addressed in large scale research projects such as the national evaluation of the Early Head Start Program (Mathematica, 2001).

In conclusion, this study presents outcome data of a home visitation program. Analysis of NCFAS outcome data indicates an improvement in operationalized pretest/posttest measures of family resilience. In doing so, the study results are promising, and warrant further investigations with a more rigorous research design.

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