Early Childhood Research with Puerto Rican Children, Families, and Programs

Building Human Services Research Partnerships in Puerto Rico

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Introduction and Overview of Report

This report analytically reviews the literature presented in an accompanying bibliography, entitled *Annotated Bibliography on Early Childhood Research with Puerto Rican Children, Families, and Programs* (Barrueco, Davis, & Agosto, 2014). The bibliography identified and summarized pertinent early childhood research that has been conducted with the Puerto Rican community on the mainland and the island. The topics covered a wide range of topics, such as infant, toddler, and preschool development; health, linguistic, and cognitive development; parenting practices; programmatic influences; and more.

Utilizing a thorough identification process, sources were sought for the annotated bibliography and the present report that included the following five characteristics:

1) Research was identified that has been conducted with young Puerto Rican families, particularly those served by the Head Start program;
2) The products included articles, chapters, books, papers, governmental and non-governmental reports, theses, and dissertations;
3) The products included both English- and Spanish-language sources;
4) The research could have been conducted in Puerto Rico, the United States, or elsewhere, and
5) Suggestions were solicited by members of the "Building Human Services Research Partnerships in Puerto Rico" Initiative and other colleagues.

The second step involved a team review process. Each identified source was analyzed for its overall content, methodology, results, and implications. The next step involved writing the annotated bibliography for the 133 documents. The abstract was first listed, followed by a summary of each source. The annotations highlighted pertinent findings for the "Building Human Services Research Partnerships in Puerto Rico" Initiative and the field as a whole.

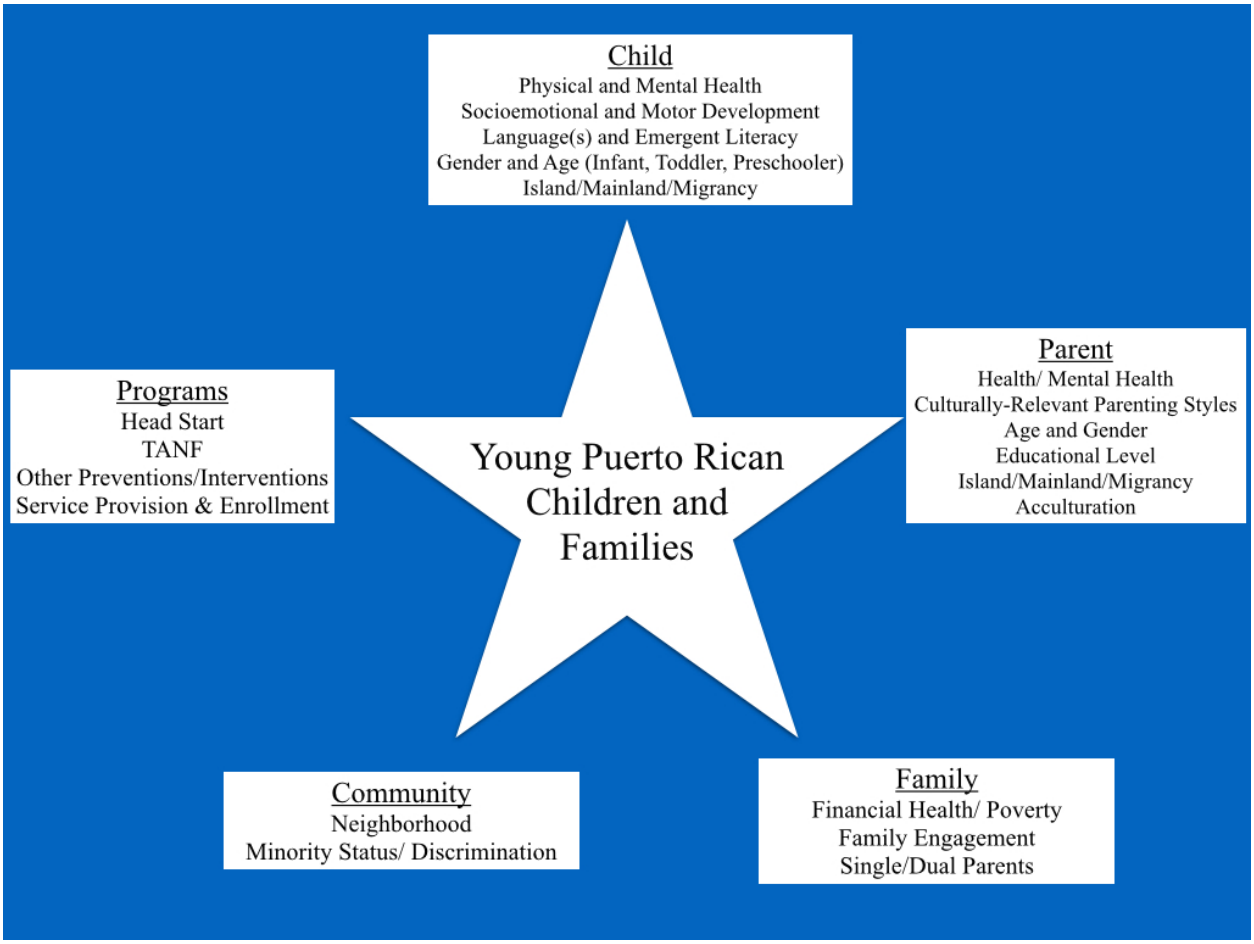
Utilizing the annotated bibliography as a foundation, the present analytically-driven paper was developed with three principal sections:

1) Conceptual Model of Young Puerto Rican Child Development
2) Integrated Review of Research Findings with Young Puerto Rican Children and Families
3) Key Implications and Critical Issues for Future Research and Programmatic Activities

Conceptual Model of Young Puerto Rican Child Development

As presented in Figure 1, a conglomerate of factors impact the development of young Puerto Rican children. These include children's own characteristics, as well as influences at the parental, familial, community and programmatic levels. The five elements presented in the Conceptual Model are symbolically represented in the form of a star, as found on the Puerto Rican flag. Importantly, the empirical base supporting these factors is vast, as described in the following section.

Figure 1. Conceptual Model of Young Puerto Rican Child Development



Integrated Review of Research Findings with Young Puerto Rican Children and Families

Child

The development of young Puerto Rican children has been examined from multiple facets: health, mental health, socioemotional, motor, nonverbal, linguistic, and early literacy. Further, the studies cover a wide age range (neonatal into the school years), include samples within and across geographic experiences (island, mainland, migratory), and utilize multiple modes of scientific inquiry (e.g., interviews, observations, direct assessments). The results are summarized below, with full details on each study provided in the Annotated Bibliography. Gaps in the literature and identified needs for future investigations are discussed at the conclusion of this report.

Child Health. An area that has garnered much attention within the Puerto Rican community is the health and well-being of its infants. This is unfortunately the resultant of the high levels of health issues at this age range, particularly in infant mortality and birthweight (an indicator of physical and developmental well-being). Puerto Rican infants have had among the highest prevalence rates of low birthweight and chronic medical conditions compared to other cultural groups (Mendoza et al., 1991). Further, pre-term mortality is 75% higher for Puerto Rican than for European American infants and overall infant mortality in the Puerto Rican community supersedes those of other Latino communities by 50-77% (Rowley & Hogan, 2012). Critically, low birthweight has been found to be the most common cause of infant death among Puerto Ricans (Rowley & Hogan, 2012). Indeed, Becerra, Atrash, Pérez, & Saliceti (1993) empirically estimated that 60% of infant deaths on the island were attributable to low birthweight.

While low birthweight babies who survive demonstrate accelerated weight gain in the early period of their life (Campos, García, García, Rivera, & Valcárcel, 2008), poor health at birth has a detrimental impact on development in early childhood, even when accounting for families' economic, demographic, or social characteristics (Gorman, 2001). Importantly, investigations have also identified various protective factors for infants with health difficulties. In a large-scale study across the island and the mainland, Puerto Rican infants born with low birthweight have better developmental outcomes when their mothers have higher levels of social support, their fathers are employed, and they are covered by medical insurance (Gorman, 2002).

Various factors have been identified as contributing to the physical health strains in the Puerto Rican community. For example, sociodemographic influences (including hospital of birth) accounted for approximately 30% of infant deaths in an island study covering a 14-year time span (Becerra et al., 1993). Further, the timing of conception has been linked with congenital anomalies among island Puerto Rican infants (de la Vega & López-Cepero, 2009). Summer conceptions increase the relative risk of open neural tube defects, cardiac issues, and cleft lip and palate. The possible underlying causes (e.g., activity, dietary changes, teratogen exposure, individual characteristics) for the seasonal variations in infant morbidity are in need of further examination (de la Vega & López-Cepero, 2009).

As further described in the following section, mother's geographic location and migrancy experience also impacts infant well-being (Landale, Gorman & Oropesa, 2006; Landale, Oropesa, & Gorman, 2000). Positive infant development is more pronounced on the mainland than the island, particularly among males (Gorman, 2001), perhaps due to differences to early health and care experiences. In addition, parents living on the island report higher levels of physical health problems among their children than Puerto Rican parents in the Bronx (Feldman, Ortega, Koinis-Mitchell, Kuo, & Canino, 2010). This study also found that asthma, abdominal pain and headaches are associated with children's mood (anxiety/depression), parental mental health, acculturative stress, and parent-child and family relationships.

Asthma itself is a prevalent experience for Puerto Rican children. About 1 in 4 Puerto Rican children have chronic asthma, which is higher than for other groups even when accounting for risk factors such as poverty, smoking exposure in the home, obesity, and single parent households (Lara, Akinbami, Flores, & Morgenstern, 2006). Among Puerto Rican children, asthma rates were higher for migrating children than those born in the United States (Lara et al. 2006).

Additional health areas that warrant attention are dental health, diabetes, tumors, and physical safety. In a study of approximately 550 toddlers, 90% were found to have teeth or dental arches that were misaligned (López del Valle, Dave-Singh, Feliciano, & Machuca, 2006). Greater rates of malocclusion were associated with thumb sucking habits and lower rates of breastfeeding. In addition, higher rates of diabetes are experienced by Puerto Rican children on the island than other ethnocultural communities (Frazer de Lladó, González de Pijem, Hawk, & The Puerto Rican IDDM Coalition, 1998). Such rates are similar across the regions of the island and the seasons. Pediatric studies have also found that brain tumors disproportionally affect children during early childhood (ages 1-4) than at later ages, with males most affected (Saavedra et al., 2011). This may be due to the greater vulnerability of physically developing children during the early years of life on the island, among other factors.

In the area of physical safety, child maltreatment has garnered attention due to the higher rates seen in Puerto Rico than in the mainland (Ishida, Klevens, Rivera-García, & Mirabal, 2013). The youngest children between the ages of 1 and 6 are the most likely to be victimized, with neglect being the most common type of maltreatment. Even in the face of such difficulties, the reporting rates are lower on the island than on the mainland, including among professionals. Further, the use of anonymity in maltreatment reporting is strikingly higher on the island (about 30%) than in the mainland (about 10%; Ishida et al., 2013).

Child Mental Health. Large-scale epidemiological studies have examined the prevalence of mental health difficulties on the island and in the mainland among Puerto Rican children (about ages 4-16). While most of the published articles report general childhood results (rather than focusing on early childhood), they are nevertheless useful for providing a broader understanding of mental health processes for the Puerto Rican community.

An early study was suggestive of higher levels of internalizing and externalizing difficulties among Puerto Rican children on the island than European American children in the mainland of similar socioeconomic backgrounds (Achenbach et al., 1990). Rather than interpret greater problems in the community, the authors recommended the potential development of separate norms to take discrepant behavioral expectations and reporting approaches into account (Achen-

bach et al., 1990; Bird et al, 1988). Even if differences in emotional and behavioral functioning were *generally* present, studies that specifically examine the presence of *disordered* mental health levels do not find differences between Puerto Rican children and their counterparts (Bird et al., 1988). That is, Puerto Rican children do not have higher rates of mental health disorders, even though they often experience greater adversities (Canino, 2007). Yet, even if the rates are not higher than for other groups, nearly 15-20% of Puerto Rican children are estimated to experience significant mental health problems (Bird et al., 1988; Canino et al., 2004). Risk factors for such mental health difficulties include: male gender, poor health, poverty, weak family systems, stressful life events, maternal mental health issues, urban region, and poor living conditions (Bird, Gould, Yager, Staghezza, & Canino, 1989; Canino et al., 2004, Canino, 2007; Leadbeater & Bishop, 1994).

Although mental health prevalence rates may be similar across the mainland and island, underlying differences may exist. For example, disruptive behavior disorders (DBD) are found among 6% of Puerto Rican children living in the Bronx as well as children living on the island (Bird et al., 2006). However, a geographical location by age interaction effect is present: Older children in the Bronx have higher DBD rates than younger children, while the opposite is true for the island. These differences may be due to both societal and cultural influences. Across both locations, Puerto Rican children are more likely to exhibit disruptive behavior disorders if they were aggressive during their toddler years, have poor relationships with their peers, and have parents with low levels of warmth and approval. Acculturative processes were not related to DBD (Bird et al., 2006). A study of preschool-aged boys already in treatment on the mainland for high levels of disruptive problems showed a relationship between their behavior, threats of abandonment by their parents, domestic violence, and harsh and inconsistent parenting (Pillai, 1998).

Attention-Deficit/Hyperactivity Disorder (AD/HD) and Oppositional Defiant Disorder (ODD) are the most prevalent mental health disorders among Puerto Rican children, along with separation anxiety and major depression (Canino et al., 2004). AD/HD and ODD symptoms have been examined among children living in Puerto Rico with potential behavioral difficulties (Bauermeister, 1992). Among preschool-aged children, attentional and hyperactivity symptoms were found to be interconnected, as were oppositional behaviors. In the general population, preschool-aged children are less likely to have AD/HD, depression, and separation than older children (Bird et al., 1988).

In addition to mainstream diagnoses, mental health studies with Puerto Ricans have incorporated culturally-relevant experiences such as *ataque de nervios*, which is characterized by marked acute distress and behavioral reactions. It is included in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) under the chapter on "cultural concepts of distress." Nine percent of children in the general community and 26% of Puerto Rican children receiving services experience *ataque de nervios.* It is more likely to be seen among females, children with multiple mental health difficulties, and those with a family history of *ataque de nervios* (Guarnaccia, Martínez, Ramírez, & Canino, 2005).

Only 26% of children with definite mental health difficulties, along with only 5% of children with potential difficulties, receive treatment (Staghezza-Jaramillo, Bird, Gould, & Canino, 1995). Even if Puerto Rican children are diagnosed and have global impairments in their everyday functioning, only about half receive services (Canino et al., 2004). Such services are gener-

ally provided at schools and medical facilities, as well as by psychologists and social workers. School services are more likely to be used by Puerto Rican children who have not yet been diagnosed use school services, while specialized mental health services are generally used by children with diagnoses (Canino et al., 2004). Parental and teacher perceptions of the problem's severity predict whether children receive services, along with parents' own psychopathology and negative parenting style (Staghezza-Jaramillo et al., 1995).

The development, refinement, and utilization of valid measures to identify children with mental health problems as well as those who are at early risk for socioemotional difficulties may assist in service provision and preventive efforts. The stability of the Diagnostic Interview Schedule for Children (DISC-IV) in identifying children with mental health disorders was examined in Puerto Rico (Bravo et al., 2001). Overall, parents were generally more reliable over time in their reports for younger children (4-10 years) than for older children. Bestard (1990) established the concurrent validity of a screening measure entitled "Instrumento de Cernimiento para Edad Pre-Escholar' (ICEPE) among Head Start children in Puerto Rico through a comparative study with the "Inventario de Comportamiento Escolar" (IDCE). The ICEPE was also able to identify children who were referred for services and those with diagnoses (Bestard, 1990).

Focusing on contextual factors (e.g., poverty, child abuse, violence, substance use) and strengthening Puerto Rican mental health policy has the potential to prevent the development of mental health problems among vulnerable children, according to Rivera Díaz (2011). Once children are identified with mental health difficulties, effective treatments must be available. Puerto Rican folklore *cuentos* that are used in the community to socialize children have been incorporated in group treatment for early elementary-aged children, with some success in alleviating anxiety among first graders (Malgady, Rogler, & Costantino, 1990). More recently, Matos, Torres, Santiago, Jurado, and Rodríguez (2006) adapted Parent-Child Interaction Therapy (PCIT) with a sample of island Puerto Rican families with preschool-aged children. In addition to translating the intervention to Spanish, cultural values (such as *personalismo* and *familismo*) were incorporated into the treatment materials and approaches. The small pilot study evidenced improvements in preschooler's behaviors, parenting stress, and parenting practices that were sustained for at least three months (Matos et al., 2006).

Socioemotional Development. The social and emotional development of young children has also been examined from normative, developmental perspectives, rather than solely focusing on pathology. Twin studies have shown that genetics play a strong role in the temperament, adaptability, and sociability of infants living in Puerto Rico (Silberg et al., 2005). Environmental influences were also identified for infants' social behaviors and ability to adapt to circumstances, which the authors relate to cultural norms. Feng, Harwood, Leyendecker, and Miller (2001) studied cultural variations in the social contexts of Puerto Rican infants over the course of their first year of life. Compared to European American children of similar socioeconomic status, Puerto Rican infants spent more time interacting with multiple individuals and with relatives. Further, Puerto Rican babies were less likely to engage in independent self-feeding behaviors and to sleep in a room by themselves, with the latter behavior largely related to maternal employment (Feng et al., 2001). Differences in infant behaviors were consistent with a parental value for *familismo* and strong kinship bonds, as well as with a reduced emphasis on self-maximization relative to

European American families (Bird & Canino, 1982; Cristofaro & Tamis-LeMonda, 2008; Harwood et al., 1996; 2000). A "goodness of fit" model (Thomas, Chess, & Birch, 1968) has been described as particularly applicable in understanding differences across cultural contexts in behavior and behavioral expectations for young Puerto Rican children (Korn & Gannon, 1983).

Cultural variations in expected social behaviors across genders also appear to be present. Puerto Rican adolescent mothers living in New York City reported fewer behavioral concerns about their sons than about their daughters (Leadbeater & Bishop, 1994). This may relate to differential expectations and socialization practices for young males and females in the Puerto Rican society, as evidenced across a variety of studies. In another mainland study, Puerto Rican mothers' narrative themes with their preschool-aged children were found to vary with gender (Cristofaro & Tamis-LeMonda, 2008). In the context of a discourse with their children about an exciting event, parents infused messages reflecting traditional gender roles regarding the role of emotions and preferred activities. Critically, parents discussed academic achievement in similar fashions with their daughters and sons (Cristofaro & Tamis-LeMonda, 2008).

Gender differences in socioemotional development have also been examined within the classroom environment. In a mainland study, preschool teachers were more likely to direct their attention to Puerto Rican females than males, regardless of the behavior of the children; this is in contrast to the findings of African American and European American children, whose behavior related to teachers' attention (Dobbs, Arnold, & Doctoroff, 2004). Gender differences in teacher directives to Puerto Rican children have also been evidenced in other studies (Matias, 1990). In a small qualitative study in Puerto Rico, traditional gender roles were seen in observations and descriptions of play and play expectations for preschoolers (Torres-Crespo, 2009). However, parents and teachers included descriptions of other non-traditional expectations, and the preschool girls exhibited some assertiveness in their play. These may indicate societal changes or reflect the presence of both *marianismo* and *hembrismo* for females in the Puerto Rican society. The former term refers to a self-sacrificing dedication to the family as embodied by the Virgin Mary, while the latter term refers to female strength and leadership that is consistent with early matriarchal structure of Puerto Rico (e.g., Cómas-Diaz, 1982).

Puerto Rican's play behaviors may also include features not typically examined in other cultures. For example, the play of Head Start children in San Juan, Puerto Rico was comprised of musical play, humor/friendly teasing, replica play, and art play, as well as traditional pretend and construction play that is often observed and investigated in mainstream mainland studies (Trawick-Smith, 2010). Interestingly, Puerto Rican children engaged in pretend and construction play in a broad array of classroom locations, rather than circumvented to the drama and block areas. Rough play was also prevalent and described as a normative occurrence by teachers. Finally, Puerto Rican preschoolers were more likely to engage in large-group play, rather than the small-group play behaviors seen in traditional preschool studies (Trawick-Smith, 2010). Peer behavior has been found to be more successful when play areas have ample space and contain duplicate items (Saenz, Iglesias, Huer, & Parette, 1999). Parental experiences have also been found to shape their children's play behaviors. Puerto Rican children in the mainland may play outdoors less often due to parental concerns about safety (Soto & Negron, 1994). Further, high levels of parent-child engagement is related to children's elaborative play approaches, as evidenced among Puerto Rican families who migrated to the mainland (Soto & Negron, 1994). Together,

these findings underscore the critical need to understand typical processes from within communities, rather than solely through comparative studies.

Motor Development. The fine and gross motor development has been generally understudied among young Puerto Rican children. Yet, some cultural differences have been indicated in early studies. Among Puerto Rican children on the island, 5- to 7-year-old boys evidenced more advanced motor development than same-aged girls; such gender differences were not present in mainland studies with European-Americans (Aponte, French, & Sherill, 1990). Another study suggests that the motor development of 7-year-old girls on the island may be weaker than for other children (Aponte et al., 1990). Yet, there were no other differences found between the Puerto Rican sample and prior studies in the mainland (Aponte et al., 1990).

Language and early literacy development. In comparison to motor development, the linguistic and emergent literacy growth of Puerto Rican children has been more thoroughly examined. The phonological structure of the Puerto Rican Spanish dialect evidences both similarities and dissimilarities to other languages (Goldstein & Cintrón, 2001). Specifically, differences are found in the prevalence of beginning consonant sounds, cluster reductions, word span, and replacement pattern among Puerto Rican toddlers on the island. The morphological development of young Spanish-speaking Puerto Rican toddlers has also been investigated, with particular attention to inflection phrase during the toddler years (Jiménez Castro & Connell, 2001). By the preschool years, the narrative structure used by island Puerto Rican and mainland Puerto Rican English-speaking children approximates that of adults (Martínez, 2001). Linguistic-based differences are evidenced across the Spanish and English preschool narratives, including distinct emphases on agency and outcomes (Martínez, 2001).

Among preschoolers, language and literacy development for Puerto Rican children varies as a function of domain and geographic location. Living on the island is associated with stronger Spanish oral language development than living in the mainland, as may be expected given the discrepant language experiences of the broader communities (Páez, Tabors, & López, 2007). Puerto Rican preschoolers on the island had weaker phonological awareness skills than mainland Puerto Rican children. In turn, mainland Puerto Rican children exhibited stronger early literacy development than oral development (Páez et al., 2007). Given that both linguistic and literacy skills are strong contributors to children's developmental and educational trajectories, attention to both processes may be warranted among young Puerto Rican children living on the island as well as on the mainland.

Additionally, the intersection of linguistic skills with broader cognitive and social functioning has undergone examination. For example, Hakuta (1987) found that bilingualism and cognitive development have mutual effects on each other over time, and the interrelationship is strongest among young children. In a study of island Spanish-speaking Puerto Rican and mainland English-speaking children, linguistic- and task-specific effects contributed to the types of categorizations made by preschoolers on a sorting task (Martinez & Shatz, 1996). The authors later published an international study across Puerto Rico, Turkey, Brazil, and the United States demonstrating linguistic and task-dependent influences on cognitive processes and responses (Shatz, Diesendruck, Martinez-Beck, & Akar, 2003). In addition to cognitive processes, language contributes to social behaviors. In a study of peer communication using a majority Puerto Rican sample of preschoolers, observational research methods revealed that young children are

more effective at obtaining desired objects from peers when they combine verbal and nonverbal bids (Saenz, Iglesias, Huer, & Parette, 1999).

In addition to normative processes, investigations have sought to enrich our understanding of hearing and language disorders among young Puerto Rican children. A small-scale study conducted with a preschool deaf sample in Puerto Rico was indicative of dialect-specific Sign Language (Rodríguez, 1984). Further, consistent communication modes between parents and impaired children were found to relate to linguistic development (Rodríguez, 1984).

A related body of work aims to improve the early identification of children with language disorders. Article omission may be an indicator of language impairment among Spanish-speaking children in Puerto Rico (Anderson & Souto, 2005). Further, preschoolers with Specific Language Impairment (SLI) make more linguistic errors in general than their typically-developing peers in Head Start on the island (Anderson & Souto, 2005). In the mainland, Spanish-speaking Puerto Rican children with phonological disorders make substitution and omission errors in manners that are similar to those seen among English-speaking children with language disorders (Goldstein & Iglesias, 1996).

Differences between typically- and atypically-developing children are also evidenced in broader cognitive and behavioral processes. Importantly, assessments that include examinations of children's "modifiability," and particularly their responsivity, may contribute to accurate identifications of mainland Head Start preschoolers with linguistic difficulties (Peña, 2000). In addition, general verbal skill and knowledge assessments may be more sensitive than vocabulary tasks at differentiating mainland Puerto Rican children with and without language disorders (Peña & Quinn, 1997). As these assessments were administered in English, the results may reflect Puerto Rican children's ability to draw on their broader linguistic base, rather than solely on specific lexical information in one language. In addition, the findings may indicate child preferences in the structure of the task (verbal description vs. naming), and/or differences in standardization of the measures (national vs. local).

Child Assessment Considerations. The development of assessments with solid psychometric, linguistic, and cultural properties is critical for the Puerto Rican community in a number of ways. First and foremost, measurement is key to the accurate identification of children's functioning and directly translates into appropriate diagnosis, treatment, and access to care. Second, assessments are increasingly used to evaluate and refine programs and interventions for the community in an era of accountability. Finally, accurate measurement is central to scientific advancements; if assessments are invalid, then the foundation of empirical knowledge is shaken (Barrueco, López, Ong & Lozano, 2012).

Impressively, there was an early body of work dedicated to the development of appropriate assessments with young Puerto Rican children; however, these efforts dissipated in recent decades. Past investigations included the development of a visual-motor measure for preschool-aged children in Puerto Rico (Alvarez & Albizu-Miranda, 1985), the Spanish translation and evaluation of a preschool school readiness assessment in Puerto Rico (*La Prueba Lollipop*; Chew, 1993), examinations of the validity of Spanish cognitive measures (del Toro Delgado & Alvarez, 1990; Shellenberger & Lachterman, 1979), studies on the stability of performance on intellectual measures across early childhood (Hertzig & Birch, 1971), and analyses of group differences on assessment measures (Anastasi & DeJesús, 1953; Walsh & D'Angelo, 1971; Walsh,

D'Angelo, & Lomangino, 1971). Since this time, there has been a dearth in assessment research with young Puerto Rican children. Yet, accounting for differences in linguistic and everyday experiences, along with cultural differences in testing strategies, are needed for assessing culturally-diverse populations (Adkins, Payne, & Ballif, 1972; Hertzig, Birch, Thomas, & Méndez, 1968; Peña & Quinn, 1997).

Parent

Children's development in the first eight years of life is inextricably linked to parents' well-being, parenting style, and sociodemographic variables. This section presents the state of knowledge about Puerto Rican parents of young children, emphasizing how parenting informs physical, educational, and psychological outcomes.

Before babies are born, their health depends on that of their mothers', along with their mothers' health behaviors. Compared to European American women, Puerto Rican women on the mainland had significantly lower intake of Vitamin D, a nutrient associated with increased birth weight (Scholl & Chen, 2009). Among babies born prematurely and admitted to the Neonatal Intensive Care Unit, most mothers positively reported the absence of substance use (Vélez, García, García, & Valcárcel, 2008). Unfortunately, 9% reported drinking alcohol, 10% reported smoking cigarettes, and 6% reported illicit drug use. In light of a study reporting that 73% of pregnancies in Puerto Rico were unplanned, it is possible that pregnant women lack resources and education about prenatal health (de la Vega & Verdiales, 2002). Importantly, community-based initiatives appear to be making strides in improving maternal-infant health outcomes. For example, perinatal transmission of HIV has been essentially eradicated in Puerto Rican hospitals implementing universal HIV screenings (Zorrilla et al., 2007).

Maternal health experiences and behaviors also continue to be influential at and after a child's birth. For example, the extent of mainland and island Puerto Rican mothers' obstetrical complications are related to their newborns' subsequent abilities to regulate their crying and arousal (Lester, García-Coll, & Sepkoski, 1982). In addition, Lester et al. (1982) found that newborns of teenage mothers demonstrated higher levels of arousal than did babies of older mothers. Over the first month of their infants' lives, a sample of 20 mainland Puerto Rican mothers reported increased parental self-efficacy and comfort with their role (González-Martínez, 2002). Changes in health behaviors continue to be seen during the first year of life. Namely, the rates of breastfeeding drop in Puerto Rico as children develop; about 35% of infants in Puerto Rico are breastfed for an average duration of 3 months (López del Valle et al., 2006).

Throughout infancy and early childhood, Puerto Rican children's health has been found to be interconnected with their parents' health. Studies have shown this parent-child link for dental hygiene and body weight management in Puerto Rican samples. Within dental health, López del Valle (2010) found concordance between the extent of mothers' and children's oral health issues in a rural area of Puerto Rico. Otero-González and García-Fragoso (2008) studied physical health in a sample of 158 2- to 12-years olds in Puerto Rico. Parents classified as overweight or obese were more likely to have children also classified as overweight or obese. However, mothers often did not identify their children as overweight. Those findings may reflect culturally-informed approaches to feeding infants characterized by a belief that "big is beautiful" and *liberal-*

ismo, an approach to feeding whereby caregivers do not tend to force or limit children's consumption, but rather allow children to have more control (Higgins, 2000).

Parents influence not only children's physical health, but also their psychological well-being. The parent-child attachment relationship is commonly considered to have a formative effect on children's social and emotional development. Attachment narratives among young Puerto Rican children are related to the strength of their maternal relationships as well as their socioemotional functioning (Gullón- Rivera, 2008). Importantly, beliefs and practices surrounding mother-child attachment may vary across cultures. Ferrer-Medina (2008) examined mothers' experiences of attachment in Puerto Rico by interviewing ten mothers of infants. Themes in maternal experiences of attachment were consistent with those reported in the attachment literature, such as feeling needed by their children and being physically close to their children.

Yet, the tenets of attachment theory may differ in some ways between Puerto Rican families and European American families. Fracasso (1994) found that secure and insecure attachment styles were identified at equal rates, with female infants being more likely than male infants to be categorized as insecurely attached. This differs from the distribution of styles reported among European Americans. In contrast to the attachment literature, a positive relationship between parents' physical intervention with infants and positive attachment security is evidenced among Puerto Rican and Dominican families (Fracasso, 1994). Using observations of dyadic interactions, Carlson and Harwood (2003) also found that Puerto Rican mothers demonstrated more physical control with their infants, and higher levels of physical control were associated with a greater likelihood of infants being securely attached at 12-months-old. This finding contrasts with past research linking physical control and insecure attachment using primarily European American samples.

Harwood and Miller (1991) measured mothers' reactions to verbal descriptions of infant attachment behaviors considered secure, avoidant, and resistant. While both groups rated the descriptions of "secure" infant behaviors highly, Puerto Rican mothers rated descriptions of "resistant" infant behaviors more favorably than did European American mothers. Further, Puerto Rican mothers valued obedience, relatedness, and good behavior in their infants, while European American mothers valued self-confidence and autonomy (Harwood & Miller, 1991). Hence, the weight of evidence suggests that Puerto Rican mothers demonstrate behaviors (responsiveness and nurturance) linked to secure attachment in European American samples, but also they do not perceive physically controlling maternal behavior and more resistant infant behavior to be damaging to the attachment relationship.

Since parents are children's first teachers, research has also been conducted studying the ways in which parents actively shape children's cognitive development. In a study of both island and mainland low-income Puerto Rican mothers of preschool children, Vargas and Busch-Rossnagel (2003) identified modeling, visual cues, and directives to be the most common teaching behaviors. In research that analyzed shared book reading practices, mainland Puerto Rican mothers fostered an environment in which their children were able to ask questions to engage with the material (Hammer, Nimmo, Cohen, Draheim, & Johnson, 2005). The language used for home learning is also informative. Puerto Rican parents living on the mainland increased the amount of English they spoke to their children from their children's preschool through first grade years. Parents who spoke to their children in English before enrolling them in Head Start preschool

continued to speak more English to their children over those four years than did parents who did not speak to their children in English before preschool (Hammer, Lawrence, Rodríguez, Davison, & Miccio, 2011). A gender effect emerged whereby mothers were more likely to use predominantly Spanish with daughters than with sons, perhaps reflecting divergent socialization goals (Hammer et al., 2011).

Several parental characteristics correlate with the provision of higher quality home learning environments among Puerto Rican families. Mainland and island Puerto Rican mothers with more social support are more likely to use positive teaching practices such as praise and inquiry with their preschool-aged children (Vargas & Busch-Rossnagel, 2003). Social support from both family networks as well as Head Start is positively associated with home-based parent involvement, which in turn is related to the academic readiness of young Puerto Rican children enrolled in Head Start (O'Carroll, 2012). Thus, both familial and program supports may have important influences on parenting practices and, ultimately, child outcomes. Such supports may be crucial for parents experiencing emotional difficulties because higher levels of maternal depression, anxiety, and stress relate to diminished quality of teaching behaviors, such as more frequent negative feedback, directives, and modeling, and less frequent inquiry and praise (Planos, Zayas, & Busch-Rossnagel, 1997). High levels of depression, anxiety, and parenting stress have been identified in a sample of Puerto Rican and Dominican mothers of Head Start preschoolers (Planos et al., 1997) with Puerto Rican mothers reporting more social support.

In addition to examining how psychosocial variables may influence parental teaching approaches, researchers have investigated the beliefs and expectations that parents hold about their children's learning, and how these beliefs relate to their teaching behaviors. When considering behavior in school, Puerto Rican mothers living on the mainland rated conformity and obedience as more important – and rated self-direction, independence, and expressiveness as less important – than did teachers. These attitudes were related to income, acculturation, and linguistic background, highlighting the interaction of cultural, economic, and structural factors in informing attitudes towards education and behavior (Ortiz-Colón, 1985). Such general beliefs may not necessarily correspond with specific parent behaviors (such as literacy practices), as was found in a study with Puerto Rican mothers living on the mainland (Hammer, Rodríguez, Lawrence, & Miccio, 2007). However, parental beliefs among mainland Puerto Rican mothers relate to young children's social and adaptive functioning in school, as reported by their teachers (Alvarez-Ortiz, 1996). This study also identified that self-reported beliefs may differ from ratings on observed interactions, indicating either that behaviors and beliefs may not be consistent with one another or that improvements in measurement are needed for this community.

In addition to studies exploring parenting within the Puerto Rican community, there is a rich body of research comparing certain aspects of parenting using a cross-cultural approach. Three studies conducted by Harwood and colleagues compared the socialization goals that middle-class European American mothers on the mainland and middle-class Puerto Rican mothers on the island held for their infants. Response patterns indicated that Puerto Rican mothers highly valued proper demeanor and decency in their infants, and European American mothers highly valued self-maximization and self-control in their infants (Harwood, Schölmerich, & Schulze, 2000; Harwood, Schölmerich, Ventura-Cook, Schulze, & Wilson, 1996; Schulze, Harwood, & Schölmerich, 2001). These socialization goals were corroborated by mothers' interaction styles

with their infants (Harwood et al., 2000), as well as feeding practices with their infants (Schulze et al., 2001). In a study unpacking cultural and economic influences on maternal socialization goals, middle-SES (socioeconomic status) Puerto Rican mothers valued self-maximization more than low-SES Puerto Rican mothers, and middle-SES European American mothers valued a proper demeanor less than low-SES European American mothers (Harwood et al., 1996). While such economic variations were identified, cultural differences continued to be more strongly related to socialization goals than SES.

Quirk et al. (1986) also identified variation in the values that mothers from Puerto Rico, Japan, and the U.S. mainland hold for their preschool children. Puerto Rican mothers prioritized health, self-confidence, religion, and affection; Japanese mothers prioritized self-discipline; and U.S. mothers prioritized individualism. The authors presented Puerto Rican mothers' values as reflecting a desire for their children to embody *respeto* (respect) for themselves (such as in the areas of dignity, self-confidence, and cleanliness), and for others (such as in responsibility to others and religion; Quirk et al., 1986). Using semi-structured interviews, Achhpal, Goldman, and Rohner (2007) found that both European American and mainland Puerto Rican parents of Head Start preschoolers considered children being prosocial and well behaved to be the most important socialization goals, while physical and creative skills were the least important. However, Puerto Rican parents expressed greater value for competencies related to future academic/professional success and family cohesiveness, whereas European American parents expressed greater value for emotional-affective competency in their preschool children.

In turn, Fagan (2000) compared the self-reported parenting styles of African American and Puerto Rican families living on the mainland. Results revealed that Puerto Rican parents reported more nurturance and responsiveness in their parenting behaviors than African American parents. Importantly, Puerto Rican children with responsive and consistent parents were reported by their teachers to have higher social competence skills (Fagan, 2000). Taken together, these studies demonstrated that, compared to other cultural groups, Puerto Rican parents place more emphasis on being respectful, responsive, and an integrated member of the family and classroom. These values contrasted with European American parents' emphasis on individuality.

In addition to cross-ethnic comparative studies, Puerto Rican parenting has been examined among Hispanic subgroups (e.g. de von Figueroa-Moseley, Ramey, Keltner, & Lanzi, 2006; Planos, Zayas, & Busch-Rossnagel, 1995; 1997). This research acknowledges the diversity and heterogeneity of Hispanic subgroups that are often treated as unitary in research. Planos et al. (1995) compared teaching behaviors of Puerto Rican and Dominican mothers of Head Start preschoolers on the mainland. Both groups commonly engaged in visual cues, modeling, and directives while teaching. In comparison, Puerto Rican mothers employed praise and inquiry more often than Dominican mothers, and modeling less often. In another study of Hispanic families on the mainland, Puerto Rican parents reported more nurturance and consistency in their parenting styles than Mexican Americans or El Salvadorans (de von Figueroa-Moseley et al., 2006). Such parental responsiveness related to children's mathematical skills and their growth in school readiness abilities over time among Puerto Rican Head Start preschoolers. Unfortunately, performance lags were still noted, which may have related to assessment considerations (de von Figueroa-Moseley et al., 2006).

The vast majority of the Puerto Rican parenting literature has focused on maternal beliefs and behaviors. Study samples are generally comprised of mothers or, if they include samples of mothers and fathers, do not parse the effect of parental gender. In one community sample of 40 married Puerto Rican fathers living on the mainland, Roopnarine and Ahmeduzzaman (1993) found that the amount of time fathers spent in primary caregiving was about a third of the time that mothers spent. Paternal involvement was unrelated to family income, fathers' education levels, or social support, but was positively predicted by fathers' perceptions of their own commitment to their families and competence as a father. Among a small sample of 25 Puerto Rican fathers of Head Start preschoolers, Fagan (1998) found that paternal engagement was predicted by maternal employment, income, self-esteem, and nurturance, but not by paternal employment. In direct contrast, data from a larger and more representative sample from the Puerto Rican Maternal and Infant Health Study indicated that paternal employment was the best predictor of fathers' financial support and contribution to childcare duties (Landale & Oropesa, 2001). Despite the contradiction, it seems that overall it is a combination of socioeconomic and relational factors that promote paternal engagement.

Parents' educational attainment has been implicated in other aspects of parenting and family well-being among Puerto Rican samples. Specifically, higher parental educational levels are linked to lower risk in their children's health and safety, as evidenced in studies of preschool Sensory Modulation Disorder (Román-Oyola & Reynolds, 2013) and car seat safety (Molins, Martínez Martínez, & Villanueva Rodríguez, 2009). Parental education was also found to relate to home-based involvement in education among Puerto Rican Head Start parents, which in turn predicted children's school readiness (O'Carroll, 2012). Interestingly, maternal education was not implicated in a study of more general types of teaching behaviors among mainland and island Puerto Rican mothers and preschoolers (Vargas & Busch-Rossnagel, 2003); this may relate to sampling differences between the two studies. At the broader family level, education may play a role in employment for Puerto Rican participants of Temporary Assistance for Needy Families (TANF; Román Oquendo & Pérez, 2004). Overall, educational attainment is generally higher for mothers in Puerto Rico than for Puerto Rican mothers living on the mainland (Bird et al., 2006, García & Levin, 2001).

Indeed, a critical consideration in the parental domain is geographic location (on the island vs. on the mainland) and migratory experiences between the two. Two distinct areas of study suggest that acculturative processes over time among young Puerto Rican families lead to changes in health and parenting. First, maternal length of residence on the mainland is related to infant mortality (Landale et al., 2006; Landale et al., 2000). Infant mortality appears to be less likely among recent migrants relative to those on the island, which may be largely a function of selective migration among Puerto Rican mothers (Landale et al., 2006). Unfortunately, longer residence on the mainland is associated with increased likelihood of infant mortality (Landale et al., 2006; Landale et al., 2000), perhaps reflecting differences in mothers' support networks, access to healthcare, or other factors. Further, Puerto Ricans born in the United States are more likely to experience risk factors such as smoking and domestic violence than those who had migrated (Landale, Oropesa, Llanes, & Gorman, 1999).

Finally, multiple domains of parenting, such as teaching and childrearing beliefs, are impacted by acculturation. While general comparative studies of Puerto Rican parents on the island

and on the mainland indicate similar teaching behaviors (Vargas & Busch-Rossnagel, 2003), nuanced studies incorporating acculturation and migrancy measures uncover differences. For example, acculturation levels relate to teaching behaviors among Puerto Rican mothers living in New York City (Planos et al., 1995) and childrearing beliefs among Puerto Rican mothers living across the northeastern portion of the United States (González-Ramos, Zayas, & Cohen, 1998). Specifically, the rankings of child characteristics among less acculturated mothers align more with traditional Puerto Rican childrearing beliefs (emphasizing humility and respectfulness), whereas the rankings among more acculturated mothers align more with European American values (González-Ramos et al., 1998).

Family

La familia is considered an organizing element of life in Puerto Rico (Archilla, 1992). While some studies have been published pertaining to the changing values and structure of Puerto Rican families, there is less research about families as a whole than about parents and children individually. Yet, attention to familial factors is needed, particularly to its impact on risk and resilience factors affecting young Puerto Rican children.

One of these risk factors is familial poverty. With two in every three children in Puerto Rico born into poverty (Pérez, 2000), it is crucial to examine potential influences on family experiences and the development of young children. Oropesa, Landale, and Dávila (2001) found that poverty predicted lower rates of prenatal care utilization and less adequate professional prenatal advice in Puerto Rico. While poverty did not directly relate to birthweight and infant mortality (perhaps due to its high prevalence rate), further studies need to examine how poverty might indirectly affect later infant outcomes through differences in prenatal experiences.

Other examinations of Puerto Rican families have focused on its general strengths, as well as adaptation to outside influences over time. Two older studies grounded in anthropological research methods described the traditional values of Puerto Rican families (Archilla, 1992; Bird & Canino, 1982). While the island has shifted from an agricultural to a more industrial society and its norms have changed rapidly, these traditional values may continue to be influential. Archilla (1992) describes how families were structured with the well-being of children considered a central societal goal. The *familismo* value guided parents to raise children to be obedient and cohesive members of their families. Gender role differentiation was also present, whereby men were the breadwinners and women the caretakers (Archilla, 1992). Loyalty to and unity within the extended family were emphasized, and extended family members were typically involved in childrearing (Bird & Canino, 1982). Both publications acknowledged that, as Puerto Rico modernized, social norms shifted. For example, the influence of *machismo* may have been attenuated, leading to more egalitarian gender roles. Furthermore, there were more single mothers and consensual unions (cohabitations) at that time than were seen previously in Puerto Rico (Archilla, 1992).

The changes in family structure cited above relate to the socioeconomic realities of family life in Puerto Rico. Mothers with children under 6-years-old are less likely to be employed in Puerto Rico than on the mainland (Mather, 2003). Among all Hispanic subgroups living in the U.S. mainland, Puerto Rican families had the highest proportion of female-led households

(Pérez, 2000), with more single parent families in Puerto Rico than on the mainland (National Council of La Raza, 2012). According to data from the 2000 U.S. Census, 27% of families in Puerto Rico were headed by a female; most of these families (71%) were under the poverty line, compared to 41% of two-parent households. While single mothers were more likely to be impoverished, dual-parent families were, by comparison, more affluent. Roopnarine and Ahmeduzzaman (1993) found that the amount of time for which parents of preschoolers had been married was positively associated with family income. It is evident that, as social norms changed, households led by women have become more common; nevertheless, many face considerable economic hardship.

While Puerto Rican family structure is changing, some traditional values seem to be maintained. The value for close ties among extended kinship groups has remained a strong component of Puerto Rican family life. Several studies have investigated the nature of these relationships. Bryant (1982) found that Puerto Rican mothers living on the mainland were more likely than European American mothers to rely on their extended family members for breastfeeding advice rather than rely on friends, neighbors, or health professionals. In a sample of 25 single Puerto Rican mothers on the mainland that had a young child with a disability, mothers indicated that they relied on family and close female friends (such as their children's godmothers) for support (Correa, Bonilla, & Reyes-Macpherson, 2011). These findings indicate that Puerto Rican parents may perceive their extended families as a source of social support and childrearing guidance. Furthermore, Cristofaro and Tamis-LeMonda (2008) conducted a qualitative examination of ways in which Hispanic parents (majority Puerto Rican) utilize narratives to communicate cultural lessons to their preschoolers. In the context of discussing a "special memory," parents emphasized the importance of familial involvement, love, and loyalty. Not only do parents value their extended family, but also they seek to instill in their children a value for family so that strong kinship ties continue in future generations. Importantly, strong familial relationships may bolster young children's development. Puerto Rican adolescent mothers reported fewer behavioral among their preschool-aged sons if they lived with their grandmother (Leadbeater & Bishop, 1994). A separate, large-scale study also found that living with both maternal grandparents yielded positive development among infants of teenage mothers (Gorman, 2001).

In addition to strong kinship ties, another strength of Puerto Rican families identified in the literature was an emphasis on education. In the Cristofaro and Tamis-LeMonda study (2008), parents discussed the importance of being diligent and successful in school their preschoolers. Similarly, in Delgado's (1998) research, Puerto Rican families living on the mainland reported high expectations for their children's educational attainment. Parents reported helping children with homework to support their learning. Despite this familial support, Puerto Rican children on the mainland demonstrated lower school achievement than their peers perhaps related to the educational contexts and/or bilingual development (Delgado, 1998). In a dissertation focused on the cross-linguistic and cross-cultural validation of a family literacy assessment, Lewis (2012) found that Hispanic families (many of whom were Puerto Rican) placed more emphasis on direct, educational, experiential reading activities than on indirect modeling behaviors. The fact that parents reported spending family time explicitly teaching children literacy skills provided further evidence that valuing education was characteristic of Puerto Rican families with young children.

Community

Young children and their families are embedded within a larger context influencing everyday practices, beliefs, and interactions. Due to the prevalent experiences of poverty and associated factors, the neighborhoods and broader communities where young Puerto Rican children live may present developmental challenges, along with associated opportunities for growth and resilience. Indeed, Torres (2009) examined the biopsychosocial development of Puerto Rican preschoolers and found associations between cortisol levels (a biological stress marker) and the degree of perceived environmental threat (identified as extrinsic mortality). Gender influences appeared salient, with girls living in high extrinsic mortality environments exhibiting the highest cortisol levels.

The role of discrimination in shaping the early lives of Puerto Rican families has been conceptually reviewed as well as empirically investigated. Szalacha et al. (2003) described their prior body of work examining the interrelationship between young children's mental health and discrimination. Puerto Rican 1st-3rd graders who reported higher levels of perceived discrimination also exhibited mental health and socioemotional risks. Further, mothers' concern about discrimination also was associated with children's emotional functioning, even after controlling for general maternal anxiety. Importantly, Szalacha et al.'s (2003) review describes how ethnic pride, bicultural development, and intercultural social skills can protect children against the influences of discrimination, leading ultimately to resilience.

Unfortunately, the youngest children may be at greatest risk of such societal influences. In a large-scale and landmark study of Puerto Rican infants and families across the island and the eastern United States, Landale & Oropesa (2005) identified lower infant birthweights in some communities. Babies were born with lower birthweights in locations such as Connecticut, Florida, Massachusetts, New Jersey, and Pennsylvania, if their mothers had darker skin tone. Such a relationship between skin tone and birth weight was not evidenced in locations such as New York City and Puerto Rico, where darker skin tones are more prevalent. Since potential confounding factors related to education and economics were controlled for, the authors describe how discriminatory experiences may relate to stress, health behaviors, and health access barriers.

Programs

In the face of these experiences, early prevention and intervention programs have the potential to strengthen the well-being of young Puerto Rican children and families. Indeed, the literature is suggestive of the positive influence of such approaches for this community. Head Start, a federally-funded program for young impoverished children and families, has been the most examined early childhood preventive intervention program among the Puerto Rican community. An early study by Currie and Thomas (1999) found that mainland Puerto Rican children participating in Head Start made larger gains in school readiness than their own siblings who attended child care programs. Such differences were not present between Head Start attendees and their siblings who remained in family care, which may have related to "spillover" effects within the family system, among other reasons (Currie & Thomas, 1999).

A subsequent study examined the experiences of Head Start participants across the nation, including Puerto Rican children and families living on the island (Zill et al., 2001). Results were presented by the primary language of the child and program (rather than by region); the report indicates that most of the Spanish-language programs were located in Puerto Rico. Improvements were evidenced among Spanish-speaking children over the course of one year in design copying and color naming. Their gains in areas such as vocabulary, mathematics, and preliteracy were similar to those evidenced among English-speaking children. Follow-up analyses by García and Levin (2001) focused on elucidating participation patterns. At the time, families in Puerto Rico reported higher levels of involvement at their Head Start center than other Hispanic and non-Hispanic families living on the mainland. They also identified fewer barriers to participation than the other Hispanic families. When children were in classrooms with higher academic emphasis, improvements in parent-child activities were more substantive for Puerto Rican families and other Hispanic families. Both of these groups reported higher satisfaction levels and social support (global as well as Head Start-specific) than did non-Hispanic mainland families.

In the largest randomized study of Head Start to date, the relative impact of the program was examined among two cohorts of children: one group that began participation at age 4 and another that began at age 3. The Impact Study included a sample of 22 centers in Puerto Rico with less than 200 participants; as such, its findings are likely less stable than the other results of the large-scale study (DHHS, 2010). Nevertheless, the findings are compelling. Among Puerto Rican children beginning Head Start at age 3, longitudinal effects into kindergarten are evidenced in mathematics. Positive influences were also identified in the socioemotional domain, with diminished hyperactivity and improved social skills. Intermittent results over the course of the longitudinal study were found in linguistic and emergent literacy skills among the young Puerto Rican children. It is important to note that most of the comparison group gained access to Head Start when they turned 4 (72%) while 77% of the children in the 3-year-old cohort remained in Head Start the following year. Thus, these findings generally reflect the influence of attending Head Start earlier in development, rather than a rigid comparison of children who are and are not enrolled in Head Start. When children first enter the Head Start program at 4 years of age, some relative gains are evidenced, though they appear less robust. For example, impacts in phonological abilities and pre-literacy skills are seen during the course of follow-up. Weaker parent-child relationships were noted over time, which may reflect the high parental care rate present in the comparison group (75%). Positively, children in Puerto Rico who participated in Head Start at 4 years of age received more services than those who did not.

When examining services in general from a geographical perspective, Puerto Rican families on the island participating in Head Start report fewer barriers in service hours and service coordination than Head Start families living in New York, New Jersey, and the U.S. Virgin Islands (Giambruno, Cowell, Barber-Madden, & Mauro-Bracken, 1997). The availability of services is generally similar, along with the linkages reported between Head Start programs and service agencies. Another critical aspect to consider in the provision of services is the "uptake" by children and families. Services may be offered, but some families may elect not to participate or may have lower rates of attendance. Indeed, only about half of families eligible to participate in a parent training program developed to prevent conduct disorder did so (Baker, Arnold, & Meagher, 2011). Mainland Puerto Rican parents were less likely than other cultural groups to

initially enroll, which may have related to socioeconomic and other differences. However, the attendance rates were similar once families enrolled in the program.

Investigations have also examined the refinement of early intervention programs for young Puerto Rican children and their families. For example, Arnold, Fisher, Doctoroff, and Dobbs (2002) found that the addition of a 6-week mathematics intervention to Head Start programs yielded accelerated developmental gains in this area, particularly for male preschoolers. Enjoyment of mathematics was also identified among both children and teachers. Both Puerto Rican and African American mainland children participating in the study evidenced greater treatment effects than European American children.

The provision of arts education within Head Start programs has also garnished attention given its importance within Puerto Rican heritage (Hernández-Candelas, 2007). In a mixed-methods study of two regions of the island, teachers reported incorporating the arts to support learning in other areas (Almodóvar, 2010). Music was most likely to be utilized, in comparison to visual arts, drama, and other artistic forms. Teachers' professional development experiences in visual arts, but not music, increased the likelihood that they used that medium. The null effect in music training may simply reflect the fact of lack of variability in this experience; indeed, all early childhood teachers in Puerto Rico were required to complete music and movement classes during their training (Hernández-Candelas, 2007). However, policies do not dictate the use of music, though programs have been developed to improve its incorporation in early childhood programs (Hernández-Candelas, 2007).

Programs serving Puerto Rican children and families may also benefit from attending to bilingual and bicultural processes. La Casa, a preschool program located within a housing development in the mainland United States, was recently refined to address linguistic and cultural issues to a greater degree in response to parental requests (Johnson-Beykont & Beykont, 2010). In turn, a group parenting program called STEP (Systematic Training for Effective Parenting program) was modified in significant ways to meet the needs of low-income Puerto Rican families (Gillete, 1989). This included translating STEP into Spanish, shortening the number of sessions from nine to four, and incorporating an individualized component. First and second generation Puerto Rican mothers on the mainland who participated in most of the STEP sessions improved their parenting knowledge and behaviors to a greater degree than non-participating mothers.

Home visiting approaches have also been used to bolster the early development of Puerto Rican children. The Infant Health and Development Program for low birthweight babies incorporated both home visitation and center-based practices between birth and three years of age (McCarton, Brooks-Gunn, & Tonascia, 1994). An intervention trial was conducted with approximately 1,000 infants across the mainland. Puerto Rican infants demonstrated gains in verbal and visual-spatial skills, even in light of the greater levels of respiratory problems experienced among this group. The authors suggest that the programmatic findings may have been attenuated due to the monolingual use of English for both the assessments and the intervention. In turn, Spanish was utilized during daily home visits in the provision of tutoring to Puerto Rican toddlers and preschoolers on the mainland (Thomas, Chinsky, & Aronson, 1973). Even with a limited sample size, benefits were evidenced in school readiness skills compared to the comparison sample.

The development and implementation of preventive intervention programs in early childhood must be grounded in an understanding of certification processes and staff characteristics. In 1984, Puerto Rico was one of the few regions that did not require any certification or training requirement for early childhood special education (Stile, Abernathy, Pettibone, & Wachtel, 1984). A more recent study identified only 41 regulated family child care programs on the island (Hollestelle & Koch, 2003). Interestingly, requirements were not established for teachers' educational attainment or background checks. However, there were requirements for trainings and health standards. In addition to regulatory aspects of early childhood programs, teacher practices and beliefs are relevant, and it is notable that they may differ from those of parents. For example, teachers may mediate learning more in mainland preschoolers' activities than parents do (Alvarez-Ortiz, 1996). Further, a study comparing Puerto Rican parent and European American teacher beliefs about child behavior identified differences. For example, teachers were more likely to emphasize values related to independent behavior and assertiveness while parents focused on obedience and conformity. Interestingly, these differences were attenuated when teachers had higher levels of cultural experiences, a finding which has potential implications for professional development (Ortiz-Colón, 1985).

Programmatic interventions also directly target the experience of poverty and other types of adversities. Participation rates in TANF (Temporary Assistance for Needy Families) and SSI (Supplemental Security Income) are higher for Puerto Rican families born on the island than mainland-born parents (Fomby & Cherlin, 2004). No differences, however, are found for participation in Medicaid, food stamps, and WIC (Women, Infants, and Children). In a six-year study, Puerto Rican and Dominican mothers' poverty on the mainland was alleviated to some degree after TANF program participation (Cherlin, Frogner, Ribar, & Moffitt, 2009). Yet, only about a quarter of individuals completing TANF on the island were able to enter the work force, perhaps due to educational and local economic barriers, among others (Román Oquendo & Pérez, 2004). In an ethnographic study of 16 unmarried Puerto Rican mothers living in public housing units on the mainland, mothers reported perceiving their housing to be a valuable resource for their families in a context otherwise characterized by financial insecurity and a struggle to find employment (Clark, Burten, & Flippen, 2011). Likely due to the levels of poverty and stress experienced, Puerto Rican children are unfortunately involved in the child welfare system. Latinos, particularly Puerto Rican children, experience higher rates of home removal, and are less likely to receive preventive and restorative services, along with bilingual/bicultural services (Zambrana & Capello, 2003). Continued efforts and attention are needed to safeguard vulnerable Puerto Rican children and to strengthen families.

Key Implications and Critical Issues for Future Research and Programmatic Activities

As conveyed in the *Conceptual Model of Young Puerto Rican Child Development* (see Figure 1), the well-being of Puerto Rican children in the early years of life is influenced by multiple, interacting influences including children's own characteristics, parental attributes, familial experiences, community contexts, and program availability and effectiveness. The empirical base is robust about the overall importance of each of these domains for the development of young Puerto Ricans, with implications for research and programmatic initiatives.

The following are key findings and recommendations stemming from decades of research with the Puerto Rican community:

1. The physical health of infants is of critical concern, particularly given the high prematurity and mortality rates evidenced. There can be cascading effects in developmental outcomes for surviving infants that can potentially be safeguarded through bolstering social support and other conditions for parents. Unfortunately, infant health concerns are present for families living on the island and on the mainland, particularly among those who have lived in the United States for some time. Poverty, maternal health processes and behaviors, and service delivery may be targeted to circumvent such detrimental infant outcomes.

2. Health areas of concern across the early childhood years include diabetes, asthma, dental, and child maltreatment. Further, discrimination and high stress environments influence young Puerto Rican children's well-being, even to the extent that mortality effects are seen. However, relatively few studies have focused on these public health areas among young Puerto Rican children. Even fewer have examined community contexts. Such initiatives could facilitate the development of prevention and intervention efforts.

3. Poverty is experienced by the majority of Puerto Rican children on the island and nearly half of Puerto Rican children on the mainland live in poverty. Such poverty has deleterious effects on multiple components of early childhood development. Positively, programs that directly target poverty (i.e., TANF) and that serve impoverished populations (i.e., Head Start) may be influential in ameliorating the effects of poverty. Specifically, improved income levels are evidenced among some Puerto Rican families upon TANF participation. Efforts to bolster the educational level of Puerto Rican parents may further facilitate this process. Second, Puerto Rican children who enter Head Start at age three make considerable gains across multiple areas, as evidenced in a randomized trial. Future studies are needed to examine whether early entry into the Head Start program is more impactful than later entry for Puerto Rican children.

4. Even in the face of multiple risk factors, the rates of mental disorders have not necessarily been higher for Puerto Rican children than other groups. Protective factors contributing to this outcome include extended family involvement and positive parent-child relationships,

among others. Yet, three considerations remain: a) The overall rate of mental health difficulties among children is considerable (about 1 in every 5 children), even if it similar to the rates of other groups; b) Most of the studies were conducted before the recent recession, which deepened the difficult economic conditions on the island. Thus, the present mental health functioning of Puerto Rican children is unknown; and c) Most epidemiological studies focused on children in their preschool years and higher. As such, the overall emotional and behavioral functioning of Puerto Rican children during the early years of life, when they often are most vulnerable, is not well understood.

5. Studies on mental health and other developmental processes must be grounded in the cultural experiences of young Puerto Rican families. The literature is clear that socialization practices and attachment experiences vary among various dimensions, including gender and the contexts in which children are reared. Even play behaviors of Puerto Rican preschoolers may encapsulate a wider range of activities and interpersonal styles than seen in other communities. Thus, interpretations and recommendations of normative and non-normative parenting and child practices by programs and service agencies should include cultural considerations. Importantly, Puerto Rican parents are dedicated to their children, and parent-child engagement was found in the literature to translate into positive child outcomes. As most of the literature has focused on the mother-child relationship, future research attention is needed regarding fatherhood as well as the general familial processes.

6. Although bilingualism is a central experience in the lives of many Puerto Ricans, the literature base is relatively scant in examining this process from infancy into childhood for this community. Available research suggests oral communication strengths among Puerto Rican preschoolers living on the island, along with emergent literacy strengths for those living on the mainland. The overall linguistic and literacy development of young Puerto Rican children is in need of both programmatic and research attention. Further, little research exists in other school readiness domains, such as mathematics and science development.

7. As described earlier, accurate assessments are a critical component of diagnostic, programmatic, and research formulations, with considerable consequences for children, families, and the programs serving them. Yet, the majority of assessment research with young Puerto Rican children is outdated and in need of significant attention.

8. Improving service provision and utilization by Puerto Rican families is needed across various areas. Only a quarter of children with mental illness receive treatment, and only a scant 5% with potential difficulties do. Access to care and barriers to enrollment into available programs need to be better understood and addressed, as Puerto Rican families may be less likely to enroll in early interventions than other groups. Positively, once Puerto Rican families are engaged in programs like Head Start and parenting classes, attendance issues and barriers may not be experienced, particularly for those on the island.

9. The empirical literature suggests that early prevention and intervention programs may be impactful. As described above, findings related to TANF and Head Start were quite promising. Further, mathematics curricula and home visiting approaches appear effective. More investigations examining the effect of early childhood programmatic efforts are needed. Such research should not only focus on the program itself, but should yield an understanding of the staff and program characteristics, practices, and professional development approaches found to improve outcomes.

10. Finally, studies utilizing both mainland, island, and migratory samples are helpful in elucidating the experiences of young Puerto Rican children and families. Unfortunately, there is a relative dearth of investigations that utilized such methodology. As such, island/mainland research is suggested, particularly for key areas as health, normative developmental processes, service utilization, and program effectiveness. Most studies conducted with the Puerto Rican community have been cross-sectional in nature and comprised of convenience samples. To the extent possible, the incorporation of longitudinal techniques and representative samples is recommended in order to more definitively identify causal effects.

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