The State of Latino Early Childhood Development: A Research Review

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About this Research Review

Abstract

Many Latino children are at risk of not receiving the proper care, services, and environment they need during their formative years to promote healthy development.

Traumatic early childhood experiences, poor nutrition, physical inactivity, low participation in preschool programs and early education, complex family and maternal structures, and other factors have been shown to affect or impair Latino children's social and emotional development, academic achievement, and overall health and wellbeing.

Culturally sensitive programs and policies are increasingly needed to address the issues that hinder healthy early development in Latino children.

Waiting for kindergarten is too late, because 90 percent of brain development occurs by age 5.

This research review summarizes the current literature on Latino child development and the programs and policies for improving early childhood development in Latino children.

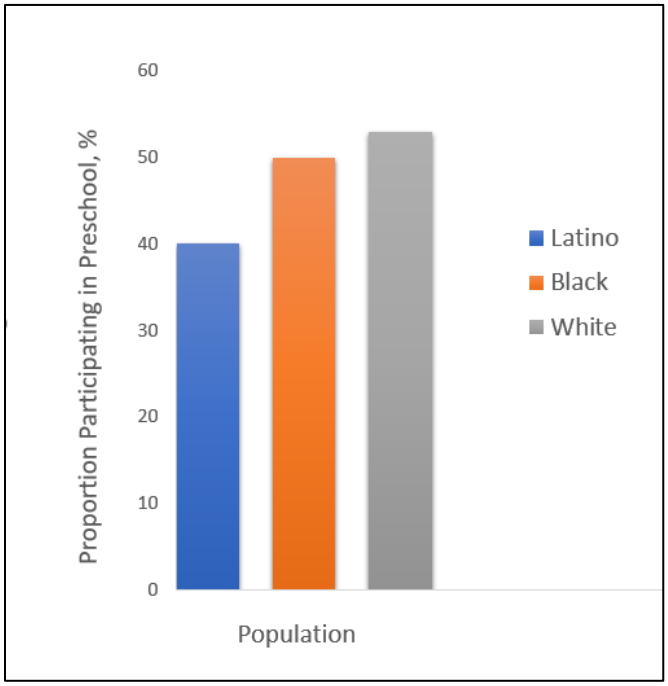
Introduction

Childhood development is a dynamic, interactive process that is not predetermined by genetics, but is hindered by lack of proper care, services, and support. Proper childhood development is critical because 90 percent of brain development occurs by age 5.

Latino childhood development is particularly important because Latinos make up 26 percent of US children younger than 5. The Latino population is one of the fastest-growing U.S. demographics, yet 12 million Latinos live below the poverty level.[1–3] As such, many Latino children are at risk of not receiving the care and services they need during their formative years, which may have negative effects on their early development and long-lasting consequences into their adulthood. Less than half of kids from low-income families are starting kindergarten ready to learn, compared to three-fourths of kids from middle-income families.[4]

For example, although research has shown the many health, social and emotional, and cognitive benefits of high-quality preschool programs, U.S. Latino children have the lowest participation in these programs among the major racial and ethnic populations (Figure 1).[5,6] Less than half of Latino children are enrolled in any early learning program and for those who do attend, program quality varies widely.[7]Poverty confounds participation in quality early learning programs.

Figure 1. Preschool Participation Rates in the U.S., by Race/Ethnicity[5]



Lack of participation in preschool programs, in combination with other factors such as infrequent exposure to preliteracy activities at home, has led to reduced school readiness in Latino children

that may result in poor long-term outcomes.[5,6] Lack of participation may stem from lack of availability. In a study about the location of child centers across eight states, 42% of children younger than 5 live in areas known as child care deserts, which either have no child care centers or so few centers that there are more than three times as many children as there are spaces in centers. The availability of child care centers is in a state of crisis for Latino families. More information about families' proximity to child care programs can inform local, state, and federal efforts to increase access to early childhood programs.

Early childhood experiences in school and at home have the potential to shape child development, both positively and negatively. Adverse childhood experiences (ACEs) are of particular concern as they can lead to a multitude of issues that can affect individuals for a lifetime. Many children, including Latino children, have been exposed to ACEs that have in some way impaired their socioemotional development, academic achievement, and overall health and wellbeing.[8,9]

Other factors affect the healthy development of Latino children. Children living in underserved areas have limited access to healthy food. Poor nutrition can lead to a host of issues including poor physical health and cognitive difficulties. Limited access to fruits and vegetables, and overconsumption of fast foods and unhealthy snacks, can lead to overweight and obesity—a growing area of concern for Latino children[10]—that increases their risk of poor long-term outcomes in many developmental areas including physical and mental health, education, psychosocial functioning, and future socioeconomic status.[11]

Despite the disparities mentioned above, many Latino children have been shown to have healthy social and emotional development, and these qualities may help to attenuate some of the negative effects of their disadvantages.[1,12] Therefore, preserving and improving upon these socioemotional strengths is crucial for ensuring healthy early childhood development in Latino children.

Moreover, more than 400,000 Latino children younger than 4 were not counted in the 2010 U.S Census.[13] Ensuring Latinos are accurately counted in the 2020 Census is important for ensuring equitable investment for healthy early childhood development in Latino children.

This research review summarizes the current literature on the issues mentioned above and the programs and policies for improving these areas of early childhood development in Latino children.

Methodology

For this research review, electronic searches of PubMed, Google, Google Scholar, and government and organization websites were performed to identify literature that was relevant to early childhood development in Latino children.

Combinations of the following MeSH terms were used: "Latino," "Hispanic Americans"[Mesh], "Mexican Americans"[Mesh], "Child"[Mesh], "Policy"[Mesh], "Public Policy"[Mesh], "Policy Making"[Mesh], "Health Policy"[Mesh], "Infant"[Mesh], "Child, Preschool"[Mesh], "Growth and Development"[Mesh], "Child Welfare"[Mesh], and "Infant Welfare"[Mesh]. Keywords included adverse childhood experiences, Latino, Hispanic, American, children, social, emotional, development, parenting practices, education, depression, school, preschool, Head Start, and teachers.

Included in this review were studies, expert commentaries, and policy statements addressing important aspects of early childhood development in Latino children, including disparities versus other races and ethnicities, factors associated with healthy and unhealthy development, and practices, programs, and policies for improving early childhood development in this population. Exclusion criteria included articles written in non-English language and studies conducted outside the United States. No limits were placed on publication date, but because of the breadth and depth of the topic, only the most recent and relevant literature was included. Older studies were included if they were deemed exceptionally important and relevant to current times. From the initial search results, titles and abstracts were reviewed for relevance and cross-checked against inclusion/exclusion criteria. Full text was obtained for relevant articles meeting the inclusion criteria. Additional literature was found through hand searches of the bibliographies of articles captured through the initial electronic searches. Research on non-Latino children and older Latino children was included if deemed exceptionally important and potentially relevant to Latino children in some way.

Key Research Results

- Adverse childhood experiences (ACEs) interfere with healthy early childhood development in Latino children. Programs and policies aimed at preventing ACEs and/or mitigating their harmful effects may improve overall health and wellbeing in Latino children.
- Latino children have limited access to healthy foods, which negatively affects overall development and wellbeing. Improving access to healthy foods at home, at school, and in the neighborhood/community may improve health, development, and wellbeing in Latino children.
- Latino children also have limited access to active spaces—such as trails, parks, and recreation facilities—that may prevent them from engaging in adequate levels of physical activity for healthy development. Improving access to active spaces may improve physical activity and health and wellbeing.
- Latino children have low participation in high-quality preschool programs and face educational disadvantages when starting kindergarten.
- Latino families share many common values—such as *familism* and *marianismo*—that may benefit Latino childhood development and influence early childhood development programs.
- Early childhood development programs that have long-term benefits for other minority and low-income children also likely benefit Latino children.
- Family-, preschool-, and community-based interventions may help to improve school readiness and lead to better developmental outcomes for Latino children.
- Programs and policies providing maternal and breastfeeding support and family support services promote healthy social and emotional development and overall wellbeing in Latino children.

Studies Supporting Key Research Results

Adverse childhood experiences (ACEs) interfere with healthy early childhood development in Latino children. Programs and policies aimed at preventing ACEs and/or mitigating their harmful effects may improve overall health and wellbeing in Latino children.

Growing up feeling safe, secure, and loved is essential for the healthy development of all children,[14] yet 70% of all children are exposed to adverse childhood experiences (ACEs) by age 6 that may have negative effects on many aspects of their developmental.[8,9,15] ACEs may include parental domestic violence, substance abuse, mental illness, criminal justice involvement, child abuse and/or neglect, poverty/homelessness, and parental death, among others.[16] Multiple studies have shown that children exposed to ACEs are more likely to develop physical, mental, behavioral, psychosocial, and/or cognitive issues than children who have not been exposed to ACEs, and these effects can extend into adolescence and adulthood.[17–24] About 30 percent of Latino children in U.S.-native families reported two or more ACEs,[25] compared to 16 percent of Latino children in immigrant families. Unmeasured confounders may buffer Latino children from exposure to ACEs in immigrant families, and/or negative effects of unmeasured factors for Latino children in U.S.-native families. Also, questions about ACEs may not capture the adverse experiences specific to immigrant families; in fact, it is possible that adverse experiences and environments that are specific to the immigrant experience are not reflected in traditional measures of ACE exposure. For both the native and immigrant groups, parental divorce and economic hardship were the most prevalent ACE exposures. Poor maternal mental health and single-woman family structure had the strongest associations with ACE exposure in both groups. Similarly, in both groups, low-income or middle-income households (≤200% of FPL or 201%–400%) were associated with twice the odds of exposure to two or more ACEs compared with those from a high-income reference group.
Many studies have evaluated the multitude of effects of ACEs on Latino children specifically, and these are categorized below by outcome measure.

Physical Health. The Hispanic Community Health Study/Study of Latinos (HCHS/SOL) Sociocultural Ancillary Study evaluated ACEs in 5,117 Latino adolescents and adults (ages 18-74) and found that 77.8% experienced at least one ACE, which stands in contrast to the 70% of youth in general who are exposed to ACEs. The same study on Latino adolescents and adults found that 28.7% experienced four ACEs or more.[26] Among the ACEs reported, the most common were parental separation/divorce, emotional or physical abuse, and household alcohol/drug abuse. After controlling for demographics and risk factors in this Latino population, ACEs were found to be positively associated with multiple health-related conditions later in life, including alcohol and tobacco use, coronary heart disease, chronic obstructive pulmonary disease, and cancer. Although this study did not find an association between ACEs and asthma, another study that used 2011 to 2012 data from the National Survey of Children's Health (N = 92,472; ages 0-17; 10.3% Latino) reported a 4.46 times increase in lifetime asthma among Latino children experiencing four ACEs compared with those experiencing no ACEs. Importantly, white children experiencing four ACEs had only a 1.19 times increase in lifetime asthma.[27]

Another study that used data from the HCHS/SOL Sociocultural Ancillary Study found that economic hardship during childhood was associated with shorter height among Latinos regardless of birth place and with greater adiposity in U.S.-born Latinos only.[28] Short stature and adiposity may lead to chronic health issues later in life, but this study did not assess for those

associations in the adult participants. Further research is needed to understand the full effects of childhood poverty on the development of chronic diseases in Latinos.

The Carolina Abecedarian Project (ABC) was designed as a social experiment to test if stimulating the early care environment from birth to age 5 could prevent the development of mild mental retardation in disadvantaged children.[29] Curriculum emphasized development of language, emotional regulation, and cognitive skills, as well as caregiving, supervised play, two meals, one snack, and primary pediatric care for the first five years of life. In their mid-30s, participants had lower blood pressure, better lipid levels, and lower abdominal obesity. They were less likely to have Metabolic Syndrome and had lower risk of experience Coronary Heart Disease. Of participants and non-participants studied, those who are obese or severely obese in their mid-30s are already on a trajectory of above-normal BMI in the first five years of their lives. Children randomly assigned to stimulating early care from birth to age 5 had significantly lower risk factors for cardiovascular and metabolic diseases in their mid-30s.[29]

Mental Health. A study of data on youth from the Florida Department of Juvenile Justice (N = 64,329; 15.37% Latino) evaluated the effects of ACEs on suicide attempts, as mediated by maladaptive behavior including personality development (aggression and impulsivity) and problem behaviors (school difficulties and substance abuse).[30] Latino youth with higher ACE scores were found to have significantly and directly increased odds of attempting suicide, as well as school misconduct. Although Latino youth were less likely to experience ACEs and attempt suicide than their white counterparts, they were more likely to have aggression, which was a predictor of suicide. Efforts should be made to identify ACEs and developmental/behavioral issues early to prevent potential suicidal behavior in Latinos and all children.

Childhood maltreatment exposure was associated with mental health problems classified as internalizing (anxiety, depression, withdrawal, somatic complaints) and externalizing (delinquency, aggression) among Latino, non-Latino white, and black groups in one study of the use of mental health services by children who had been exposed to some form of maltreatment and were being investigated by child welfare services.[31] The study (N = 1,600; 19.3% Latino) found that neither internalizing nor externalizing problems predicted the use of mental health service in Latinos, which is contrary to previous findings suggesting that Latinos with externalizing problems are just as likely to use mental health services as their white and black counterparts.[32] The lack of significant association is potentially attributed to the smaller Latino sample size in this study, as noted by the authors. However, other factors such as cultural and family issues may dissuade Latino parents from following through on referrals made to mental health services after their child's exposure to maltreatment. Thus, additional research is needed to identify the predictors of mental health service use among Latino youth and develop the necessary assessment and counseling tools to identify at-risk Latino youth and get them the mental health services they need to improve their mental health.

Read the full *Salud America!* research review on mental health and Latino children.[33]

Substance Use/Abuse. A study of 1,259 Puerto Rican youth (10 or older at baseline) from the South Bronx, New York and San Juan, Puerto Rico found that child maltreatment, parental maladjustment, and sociocultural stressors increased the risk of early alcohol use (by age 14) in this youth population.[34] Linear relationships were observed between the number of ACEs to which a child was exposed and the risk of early drinking. Another study of 1,420 Latino emerging adults in Southern California found that the presence of ACEs was significantly associated with substance use or abuse, specifically cigarette, alcohol, marijuana, and hard

drug use. As the number of ACEs increased, so did the substance use for all substances.[35] Depressive symptoms stemming from ACEs can also increase the risk of substance use/abuse, so identifying and treating depression may help to reduce the substance use/abuse, although it is likely that many factors are involved and further symptoms assessment and intervention may be warranted.[36]

Education/achievement. Children ages 3 to 5 who have had two or more ACEs are over four times more likely to have trouble calming themselves down, be easily distracted, and have a hard time making and keeping friends. More than three of four children ages 3-5 who have been expelled from preschool also had ACEs.[37]

A study of urban children (N = 1,007; 24% Latino) used data from the Fragile Families and Child Wellbeing Study, a national urban birth cohort, to evaluate the effects of ACEs on kindergarten outcomes.[20] Children exposed to three or more ACEs were more likely to have below-average language and literacy skills, poor math and emergent literacy skills, attention problems, and aggression in kindergarten. However, the data were not analyzed separately for Latinos.

Preventing ACEs and/or mitigating their harmful effects is critical for improving prospects for early child development, and many programs and interventions have been implemented in this regard.

The American Academy of Pediatrics (AAP) recommends early screening for developmental and behavioral problems starting at age 9 months through 3 years.[38] The *Birth to 5: Watch Me Thrive!* initiative is a federal effort to promote healthy child development through care collaboration and a system-wide approach, and provides screening resources for families, educators, and various healthcare providers (https://www.acf.hhs.gov/ecd/child-health-development/watch-me-thrive).[39]

Home visits have been also shown to help prevent ACEs by providing parents and caregivers with the necessary support, knowledge, and tools to promote a healthy, nurturing home environment for their children.[40] Proactively building trust, security, and resilience in families can help children process and overcome the effects of ACEs should they occur. Home visitors educate expecting and new parents about nutrition, sleep habits, and health care, do family and child assessments to screen for ACEs (e.g., through family map inventories [FMIs],[41] and make referrals to programs such as WIC, Medicaid, heat and housing programs, and domestic violence services, as needed, to help them build a stable and healthy family. Moreover, culturally-appropriate home visits that engage family and community members are especially important for improving outcomes in Latino youth who may have mental health issues stemming from ACEs or other reasons. For example, Project Wings Home Visits, a home visit program aimed at improving mental health awareness among Latinos has shown progress in reducing mental health issues in Latino youth.[42] Family-based home visit programs are especially important for Latino families, as multiple family members may be living in the home and can play an important role in promoting a healthy environment for Latino youth.

The pediatric medical home model, promoted by the AAP, has been studied as a potential intervention to mitigate the harmful effects of ACEs. The medical home model is a continuous and comprehensive approach to healthcare from infancy through young adulthood. In a study using data from the 2011-12 National Survey of Children's Health, children were evaluated for physical and psychological health, social activities, educational achievement, ACE exposure and medical home access.[43]

Children were considered to have a medical home if they met the following criteria:

- Having a personal doctor or nurse
- Having a usual source for sick and well care
- Receiving family-centered care
- Getting referrals for specialty care when needed
- Having effective care coordination when needed

Medical home access was associated with greater wellbeing in children. Among children ages 6-11 who had experienced ACEs, access to a medical home resulted in higher levels of wellbeing compared with no access to a medical home, suggesting that medical homes may contribute to early ACE prevention, identification, and intervention. Importantly, children in minority groups and those living in poverty or without insurance are less likely to have a medical home than their white, more affluent, and insured counterparts,[44] so strategies for improving access to a medical home in Latino children falling into these categories may be warranted. Supportive relationships and teaching resilience skills can mitigate the effects of ACEs. Children ages 6-17 who have had two or more ACEs but learned to stay calm and in control when faced with challenges are over three times more likely to be engaged in school compared to peers who have not learned these skills.[37]

Other interventions for preventing, identifying and/or addressing ACEs may include screening for ACEs during primary care visits and child welfare assessments, early care and education (ECE), mindfulness-based, mind-body approaches, parent-child psychotherapy, and family resilience programs, and quality and affordable childcare, among others.[40,45–51] ECE programs and systems, for example, can provide trauma-informed care (TIC), which supports children's recovery and resilience using evidence-based approaches. A report by Child Trends identified emerging TIC approaches: integrating trauma-informed strategies into existing ECE programs to support children in those programs who have experienced trauma, building partnerships and connections between ECE and community service providers to facilitate screenings of and service provision to children and families; implementing professional standards and training for infant and early childhood mental health consultants that emphasize TIC, and supporting the professional development and training of the ECE workforce in working with and supporting young children who have experienced trauma.[52] Regardless of the intervention used, cultural sensitivity and relevance is important for addressing ACE issues that are specific to Latinos.[53]

Latino children have limited access to healthy foods, which negatively affects overall development and wellbeing. Improving access to healthy foods at home, at school, and in the neighborhood/community may improve health, development, and wellbeing in Latino children.

Pediatric obesity is an important public health issue. Targeted efforts to curb child obesity rates are necessary, especially among Latino children, as this sub-group is more likely to become overweight before entering elementary school than children of other ethnic groups.[11] Obesity in Latino children increases health risk factors and can also impact school performance.[11,54]

A main contributor of overweight and obesity in Latino children may be their limited access to healthy food. See the full *Salud America!* research review on Latino children and healthy food access here.[10]

Some recent study results appear mixed on this issue. Although fast-food consumption does occur in Latino children, one study found that their caloric intake from fast food was comparable

or lower than in other racial and ethnic groups, except for Asians.[55] Another study found that soda and unhealthy snacks were commonly available in Latino households, but so were fresh fruits and vegetables, and Latino preschool children also consumed fruits and vegetables more frequently than black children.[56] These findings are somewhat contrary to those of another study of primarily Latino and black children living in rural, low-income families in the Southeast US that found lower consumption of fruits among Latinos compared with black children.[57] Many factors appear to contribute to intake of fruits and vegetables, as another study of older Latino children (ages 10-14) found that few of the participating children (N = 181) met the dietary recommendations regard fruit and vegetable consumption and other nutritious food.[58] Access to culturally-relevant healthy foods is also a factor. In a study of grocery stores in Latino and black neighborhoods, most stores carried fewer than 50% of fruits and vegetables that were considered culturally specific and commonly eaten by these populations.[59] Poverty and food insecurity may play a contributing role as well,[60] as may parenting issues such as stress and depression that may affect parental feeding practices.[61]

Other issues such as cultural beliefs may influence the types of foods eaten. Many Latinos believe they are lactose-intolerant and often avoid dairy products to reinforce this belief; however, this culturally-specific eating preference may lead to deficiencies in micronutrients such as calcium, potassium, and vitamin D. Optimal levels of these micronutrients are thought to reduce the risk of heart disease, metabolic syndrome, and type 2 diabetes.[62]

Because poor nutrition and obesity in Latino children is due to complex sociocultural reasons, a broad approach to improving eating habits may be effective, especially when it includes extended family networks, school, and community activities.[63] Addressing parent feeding practices is necessary to empower Latino parents to offer healthier food choices at meal times and snacks in the home environment. Parents should be encouraged to eat family meals together to model healthy eating habits and to avoid TV during meals.[56]

Early care and education (ECE) is an emerging setting for obesity-prevention via healthy lifestyles. The use of ECE facilities—including child care centers, day care homes, Head Start programs, preschool and pre-kindergarten programs—has become a norm in the U.S.[64] A successful program, *Color Me Healthy*, demonstrated positive health outcomes in young children as they learned about healthy eating and exercise in active ways, including interaction with peers and parents. Additional programs that have been successful include *Brocodile the Crocodile, Eat Well Play Hard*, and *Hip Hop to Health, Jr*.[65] Any program implemented, however, should be modified as needed for cultural relevancy.[63]

Several organizations play a central role in improving healthy eating in Latino children, including schools, WIC, Head Start early child care programs, and churches. Community programs are also effective. LA Sprouts, a 12-week hands-on nutrition/cooking and gardening curriculum was pilot-tested with 104 Latino children (59% obese), with a control group, to increase knowledge and skills on gardening, nutrition, and cooking.[66] The curriculum was developed to be culturally- and age-appropriate for urban, Latino upper elementary children. At the end of the pilot test, intervention children had significantly lower diastolic blood pressure and greater fiber intake compared with controls; those who were overweight at baseline also had decreases in BMI and weight gain compared with controls who were overweight. Another pilot study (led by a *Salud America!* grantee) tested a community-based garden, nutrition, and cooking program, Growing Healthy Kids, with a 60-percent Latino cohort of 120 children and their families. The study found that 17% of overweight/obese children achieved an improved BMI classification. According to parents' reports, children ate two more servings of fruit per week and almost five more servings of vegetables per week.

At the federal level, funding is allocated to schools to offer healthy breakfasts and lunches to children who are on free or reduced meals, in which Latinos are more likely to qualify for than white children. States with stronger nutrition standards are better able to reduce obesity among children in free and reduced lunch programs. More innovative programs to improve nutrition in schools include better vending machine choices and more nutritious a la carte items.[67] Other federally-funded programs—such as Supplemental Nutrition Assistance Program (SNAP), Supplemental Nutrition Program for Women, Infants, and Children (WIC), Summer Food Service, Head Start, and Child and Adult Care Food Program (CACFP)—may also help to improve nutrition and access to healthy food in Latino children (see https://www.nutrition.gov/food-assistance-programs for more information);[68] importantly, however, undocumented immigrant Latinos would not qualify for these programs and may need help from other sources, such as emergency food assistance programs.[69]

Latino children have limited access to active spaces—such as trails, parks, and recreation facilities—that may prevent them from engaging in adequate levels of physical activity for healthy development. Improving access to active spaces that promote physical activity may improve health and wellbeing.

Many studies have found that U.S. Latino children have inadequate access to active spaces.[70–75] One study of three diverse U.S. regions found that only 19 percent of Latino neighborhoods had recreational facilities, compared with 62 percent of white neighborhoods.[76] Similar results were found when looking specifically at neighborhood socioeconomic level, where children of racial/ethnic minorities living in poverty had less access to active spaces than children living in more advantaged neighborhoods.[77] Interestingly, national data found that Latino neighborhoods were actually closer to parks but farther from green spaces than non-Latino neighborhoods,[78] so more research may be needed to determine if and how the type of active space influences physical activity levels.

Inadequate access to physical activity sites has been linked to low levels of physical activity among Latino children.[79,80] In one study of children (66% Latino) living in East Harlem, NY, nearly 80 percent of the Latino participants had no access to active spaces, and those living in areas with fewer active sites spent less time engaging in physical activity. Therefore, increasing access to active spaces in underserved areas may help to promote physical activity among youth living there.[79,81,82]

The Healthy People initiative developed by the U.S. Department of Health and Human Services aims to increase youth access to active spaces by improving the built environment (e.g., adding sidewalks, bike lanes, trails, and parks) and increasing access to physical activity facilities.[83] Other initiatives are underway in a number of U.S. cities, many of which have predominantly Latino communities. These include shared and open use policies, where schools and other entities partner to share school recreational facilities with the public; outdoor learning environments or green schoolyards, where early care facilities and schools include gardens and natural elements in the playscape; Open Streets programs, where streets are closed to motorized traffic allowing for safe use by residents for walking, bike riding, etc; “rails-to-trails” projects, where inactive railroad tracks are converted into bike paths and parks in a number of U.S. cities; opens space plans, which aim to improve access to trails and green space; Complete Streets policies, which call for roadways to be safe and convenient for people of all ages, whether walking, biking, driving, or riding transit; Vision Zero strategies,[84] which aim to eliminate traffic fatalities and serious injuries; and other initiatives.[71,85–90]

The design and development of communities can make it easier or more difficult for families to be active on a daily basis. The National Physical Activity Plan highlights several methods to increase families' opportunities for incidental physical activity:[91]

- Effective land use policies can put common destinations with walking and biking connections near where families live, to increase active transportation as well as access to vital community services.
- Community planners can integrate considerations for non-motorized travel and public health into formalized planning processes, such as master plans, comprehensive plans, zoning code updates, housing and commercial developments, metropolitan planning organizations' (MPO) transportation improvement project lists, trail plans, and regional transportation plans, with specific focus on improving environments in low-income communities.
- Transportation spending can be reformed to tie it to larger goals for health, safety, equity, and the environment—rather than to a focus only on traffic volumes and speeds.

Healthcare providers also play in important role in promoting physical activity. There is little research on how effective physical activity counseling and prescriptions are to increase physical activity levels among Latinos, but some studies show that asking patients about physical activities levels is associated with weight loss, improved glucose control in diabetic patients and increased physical activity among cancer survivors.[92] Additionally, physicians who are physically active themselves are more likely to counsel more frequently and more effectively about the importance of physical activity to their patients.[93,94] The National Physical Activity Plan highlights the need for healthcare systems to integrate physical activity as a patient "vital sign" into electronic health records for all healthcare providers to assess and discuss physical activity with their patients.[91,92] Tobacco use, for example, was adopted as a vital sign 60 years ago. After smoking, physical inactivity is the leading risk factor for predicting if a person will die early.[95] Healthcare systems should also support the capacity of school-based health clinics and early learning programs to promote physical activity. Additionally, schools, childcare centers, and early childhood facilities can adopt standards to ensure children are appropriately physically active and to develop outdoor learning models to integrate physical activity, natural settings, and education.

See the full *Salud America!* research review on Latino children and active spaces here.[89]

Latino children have low participation in high-quality preschool programs and face educational disadvantages when starting kindergarten.

Although Latino children may be of similar weight at birth and equally able to thrive in the first 2 years of life compared with white children,[96] their ability to reason and remember tasks (cognitive processing skills), verbally communicate, and identify letters, numbers, and shapes (preliteracy skills) lessens significantly by age 24 months, and these disparities appear even more prevalent in Mexican-American children than in other Latino subgroups.[1]

In general, a 15- to 25-percentage point gap exists for Latino children relative to their white peers.[97] Children who start behind in kindergarten often stay behind. See more in the full *Salud America!* research review on building support for Latino families.[98]

Causes for cognitive, preliteracy, and oral communication gaps in Latino children are multifactorial. Among the most common are poor education, large family sizes, low employment or having multiple jobs, and depression among Latina mothers. These factors have been

suggested to reduce the likelihood that Latino parents would engage their children in preliteracy activities or read books to them, both very important activities leading to literacy and school readiness.[1,99,100] Although most Latino parents are bilingual or can speak English fairly well, some do not have a good command of the English language, which may decrease their likelihood of reading or telling stories to their children in English, compared with white parents.[100,101] Additionally, cultural beliefs that teachers are the experts in these areas, coupled with limited parental education, may deter Latino parents from engaging their child in preliteracy activities.

Participation in preschool programs is also suboptimal in Latino children and is a main contributor to poor school readiness.[5,6] In recent years, several programs have been set forth to improve kindergarten readiness and create a trajectory of academic achievement, employment, and increased earnings for disadvantaged Latino children.

In the United States, almost 70% of 4-year-old children go to early learning centers.[102]

However, nearly six of every 10 4-year olds are not enrolled in publicly funded preschool programs, and even fewer are enrolled in the highest-quality programs. Participation is particularly low for Latino children, at 40% compared to 53% of white children. Participation is also low for low-income children, at 41% compared to 61% of their more affluent peers.[7]

Lack of participation in early care and education programs may stem from lack of availability. In a study about the location of child centers across eight states, 42% of children younger than age 5 live in areas known as child care deserts, which either have no child care centers or so few centers that there are more than three times as many children as there are spaces in centers.[103] The availability of child care centers is in a state of crisis for Latino families. Several elements are critical for the ideal child care center:

- High-quality early childhood education centers should be more affordable and accessible to low-income Latinos, with higher density in Latino neighborhoods.[104]
- Early childhood education centers should offer services from birth through age 5 to allow single-site care of all children within one family, and continuity of cognitive assessments and interventions.[104]
- The location and design of early learning centers can support active transport and increased student physical activity throughout the school day.[91]
- Students who have access to nature at school engaged in physical activity 10 times longer than those students who had limited access to nature at school.[105] Outdoor learning environments and green schoolyards, for example, can boost student's academic performance, physical activity, mental health, and different types of play, which are critical for development.
- The American Academy of Pediatrics (AAP) states that unstructured free play is essential for children's emotional development and can protect against stress, anxiety and depression in children.[106]

More information about families' proximity to child care programs can inform local, state and federal efforts to increase access to early childhood programs, especially given the financial impact of early care and education programs. Only 14% of public education dollars are spent on early childhood education, yet for every $1 spent expanding early learning, society receives a return on investment of $7 or more based on increased school and career achievement, as well as reduced costs in remedial education, health, social welfare programs, and criminal justice system expenditures.[5,7,107,108]

Family-, preschool-, and community-based interventions may help to improve school readiness and lead to better developmental outcomes for Latino children.

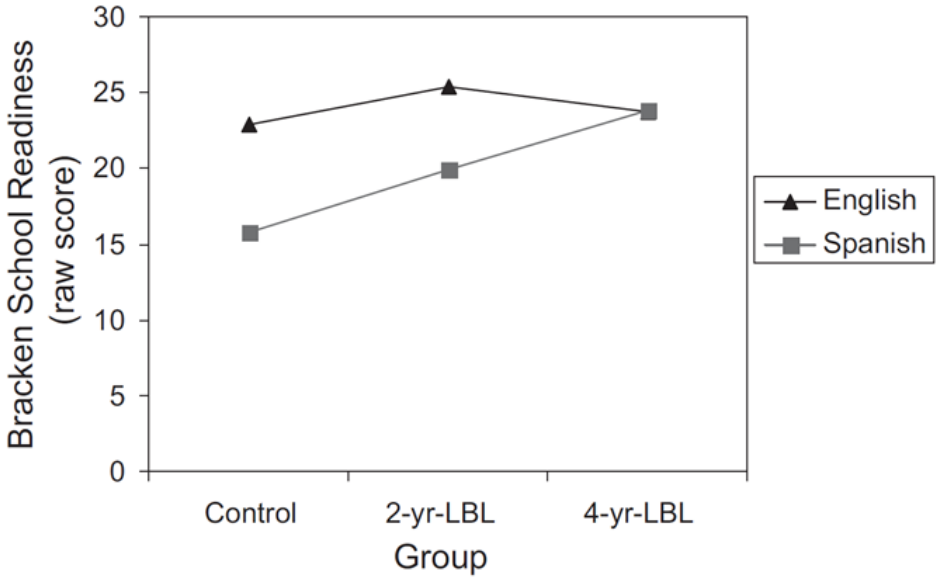
Many children attend Head Start programs, which were founded to promote school readiness for children of low-income families. In recent years, the Head Start curriculum has been challenged to enhance children's language and preliteracy skills using interactive reading with active discussions. One of these programs, the Research-based, Developmentally Informed (REDI) classroom intervention, uses evidence-based curricula that center on preschool attainment of language, preliteracy, and social-emotional skills considered essential for later achievement. In a study of 356 children (17% Latino) enrolled in Head Start programs, children exposed to the REDI intervention had significantly improved vocabulary and social-emotional skills compared with those who were not exposed to the REDI intervention,[109] and these skills were sustained throughout kindergarten.[110] REDI-P, the parent program of the REDI, was introduced to teach parents to engage their children in directed talk and play sessions and included bi-weekly home visits. In two randomized controlled trials (N = 200, 19% Latino;[111] N = 556, 19% Latino);[102] children exposed to both REDI and REDI-P showed significant gains in literacy and social-emotional skills compared with children not exposed to both interventions, and these gains were sustained into kindergarten[112] and second-grade, with improved classroom participation, student-teacher interactions, and friendships.[102] Another randomized study (N = 200; 20% Latino) showed similar findings but also found that REDI-P was augmented by pre-intervention parental support for learning, with children receiving greater baseline parental support faring better, suggesting that parental support is a key contributor to child learning in preschool programs.[112]

The Miami School Readiness Project (MSRP) was a large public preschool program that examined the effects of preschool curricula on kindergarten readiness in 7,045 Latino children (and 6,700 black children).[113] The program involved the use of two different curricula: the more conventional and widely used High/Scope curriculum, which balances child-initiated and teacher-directed activities in small- and large-group settings, and the Montessori curriculum, which individualizes learning to each student and fosters independent, child-directed learning with fewer teacher-directed activities. Although all children made progress in pre-academic, socioemotional, and behavioral skills regardless of curriculum, the Montessori program appeared to be more beneficial for Latino children who, despite being at the highest pre-academic and behavioral risk at baseline, finished the preschool year with test scores above the national average. One potential reason that the Montessori program was such a success in Latino children is that it incorporates a child's culture into the classroom, which some say is essential for preschool success in Latino children. And, since black children seemed to fare better in the High/Scope program, these data suggest that preschool curricula should be tailored to racial, ethnic, and cultural differences. It has also been suggested that Montessori teachers may be more educated and more culturally aware than teachers of other preschool programs, which may be another contributor to the positive findings in this study.

The Little by Little (LBL) program is a bilingual literacy promotion and supplemental nutrition program provided as part of the WIC program. In LBL, parents receive brief counseling on the importance of reading to and verbally interacting with their children, handouts on developmental milestones and appropriate interaction methods for promoting optimal child development, and an age-appropriate children's book or toy for use during parent-child interactions. Reading materials are provided in English or Spanish, depending on the family's primary language. LBL was implemented in Los Angeles, California, in 118,000 3- to 4-year-old, predominantly Latino (92%) children in the WIC program; its effectiveness on kindergarten readiness was evaluated

by randomly selecting WIC families and dividing them into three groups based on their exposure to the intervention: no intervention, 2-year intervention, and 4-year intervention.[100] Parents in the intervention groups received the intervention when children were 2 years old (2-year intervention) or when the mothers were in their third trimester of pregnancy (4-year intervention). Although no significant differences were observed between intervention groups among English-speaking families, Spanish-speaking families received significant benefit from the intervention. Children in both intervention groups were significantly more prepared for kindergarten (measured by Bracken School Readiness score) than those in the no intervention group, with the 4-year group receiving the greatest benefit (Figure 2). The program also improved the awareness in Spanish-speaking parents of the importance of promoting early reading and verbal interaction with their children and providing a literature-rich home environment to improve their child's literacy skills and school readiness.

Figure 2. Effect of LBL Intervention vs Control on School Readiness in English- and Spanish-Speaking Preschool Children [100]



ParentCorps, another preschool program that involves both school-based and parenting-centered interventions, aims to promote safe, nurturing, and predictable environments for children. The program involves professional development for preschool teachers and parent counseling administered by teachers and mental health professionals during after-school hours. ParentCorps was evaluated in a randomized study of 4-year-olds (N = 1050; 9.8% Latino) from 99 preschool programs in New York City.[114] By second grade, children in this program had fewer mental health problems, better student-teacher interactions, and higher academic performance than peers who did not receive this intervention. Other examples of interventions aimed at improving school readiness in Latino children include home visits, "Zero to Three" programs, Pre-K 4 San Antonio, and First 5 LA.[2,115–118]

Latino men are often less willing to talk about their problems, like parenting insecurities or health issues, which can result in decreased engagement in their children's life and decreased attendance in parenting programs, which may hinder early childhood development. Researchers in New York created a parenting class for 126 low-income, Spanish-speaking Latino dads, but framed it as an academic-readiness program for children.[119] The eight-week training intervention, which revolved around shared book reading, increased Latino dads' parenting

skills by 30 percent, and increased Latino children's language development and school readiness by 30 percent. Additionally, the 79-percent parent attendance rate was high, researchers indicated. The finding suggests it is critical to develop culturally relevant, engaging, and sustainable parenting interventions for Latino fathers.

Teaching social and emotional skills can also have an impact on student's academic development. Social and emotional learning is "the process through which children and adults acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions," according to a Penn State and Robert Wood Johnson Foundation report.[120] The report indicates that, when learned early, social and emotional skills can help children overcome challenges and avoid unhealthy behavior, improving a variety of outcomes into adulthood, and have significant economic impact for individuals and society overall. The report cites research that indicates that students with strong social and emotional skills: do better in school; are more likely to graduate college and get a well-paying job; support healthy functioning and help people avoid problems like crime and substance use; and have a greater likelihood for long-term success as an adult. Another report indicates that evidence-based programs can optimize the teaching of social and emotional skills in preschool through professional development for teachers, apparent involvement, and integration with academic enrichment initiatives, which can spur greater benefits for children with delays in social-emotional skill development associated with early socioeconomic disadvantage.[121]

Much of the Latino-focused research in this area specifically involves social and emotional development in Spanish and English dual language learners.[122] Still, one study found that teaching social and emotional skills to inner-city students contributes to their academic achievement. The study involved all students enrolled in regular or bilingual education in an inner-city school system where 2 out of 3 students qualified for a free or reduced price lunch and 9 out of 10 students were black or Latino.[123] Another study found that classroom programs designed to improve elementary school students' social and emotional skills can also increase reading and math achievement, even if academic improvement is not a direct goal of the skills building. The benefit held true for students who qualified for free and reduced-priced lunch.[124]

Early childhood development programs that have long-term social and emotional development benefits for other minority and low-income children also likely benefit Latino children.

Children who participate in high-quality early care and education (ECE) programs experience a range of immediate and long-term cognitive and health benefits, with the greatest impact seen in low-income populations.[98]

Although extensive literature is available on the long-term effects of Head Start and other early childhood development programs on black and white children, the effects of these programs on Latino populations have mostly been ignored.[125] Additionally, nearly 40 years ago, it was recognized that cultural differences exist among the different Spanish-speaking people and that different subgroups should be analyzed separately. However, early data from Head Start centers tended to combine all Latinos into one group.[125,126]

From the available data, providing Spanish language in preschools was shown to enhance Latino and non-Latino education as far back as the 1980s, and current recommendations believe that Spanish language and culture should be instituted in preschool programs serving

Latino communities.[126–128] The Head Start Curriculum is mandated to have at least one Spanish-speaking educator, and that educator should be able to understand a Latino child's culture and heritage.[125] Although long-term effects of the Head Start program were not documented for individual children or for Latinos specifically, an overall cost-benefit impact was found in social, emotional and health outcomes.[129–132] White children who attended Head Start were more likely to complete high school and attend college than their siblings who attended regular preschools. For black children, there were less significant educational gains from attending Head Start versus a regular preschool, but a decrease in criminal activity was observed.[133]
The long-term effects of other preschool and elementary programs on low-income, but not necessarily Latino, populations are mentioned herein to sort out factors that led to successful outcomes in children attending these programs. The Child-Parent Center program in Chicago provides educational enrichment through school- and family-based services from preschool to third grade. In this program, parent involvement was mandatory, teachers interacted with parents directly, and classroom sizes were small, all of which contributed to its success.[134] Compared with children who did not participate in the program, those who participated in the preschool phase of the program were more likely to graduate high school, attend a 4-year university, and have more overall years of education. Those participating in the preschool and grade school phases had higher rates of full-time employment and educational attainment. Other long-term benefits of the program included increases in attainment of health insurance, reductions in depression and disability, and reductions in criminal activity and arrests.

The High/Scope Perry Preschool Program was implemented for 123 low-income black children who were followed up from preschool to age 40. Those participating in the program showed less criminal activity, greater earnings, higher rates of high school graduation, and higher IQs compared with those who did not.[135] The Project STAR program enrolled children between kindergarten and third grade and showed that improved test scores, and higher earnings, college attendance, home ownership, and 401(k) savings at age 27, were due to noncognitive skills learned in high-quality kindergartens. They also showed that smaller and better classroom environments for grades 5-8 resulted in marked long-term benefits even without earlier intervention and that students from smaller classes (13-17 children vs 20-25 children) were more likely to attend college.[136] Finally, the Abecedarian Project cared for and educated children from as young as 6 weeks to 8 years. Enrollment in the program led to better educational gains, mixed economic benefits, and no difference in social-emotional measurements compared with not being enrolled in the program.[137]

Taken together, the most successful elements in these studies—smaller class sizes, more parent involvement, and better-educated teachers—would likely benefit Latino children as well, if implemented in Latino-focused programs. Importantly, these programs were more expensive to run than the Head Start programs.

Latino families share many common values—such as *familism* and *marianismo*—that may benefit Latino childhood development and influence early childhood development programs.

Children begin to develop their social and emotional skills through initial interactions with family. Through strong and consistent relationships, they learn the importance of social bonding, connecting to others with empathy, and self-regulating emotions. Young children begin to learn about complex social interactions by receiving responsive caregiving from parents, which often leads to positive outcomes later in life. One study (N = 7,750; 19% Latino) found that although Latino children may demonstrate cognitive gaps compared with white children after age 1, their social-emotional health rivals that of white children, even when raised in lower-income families.[1]

These findings suggest that social and emotional health of Latinos develops on an independent pathway. One potential reason is the parenting style among Latina mothers, which can be characterized as warm and nurturing. Latina mothers are typically very responsive to their children, and report fewer depressive symptoms than white mothers, which could be allowing for stronger connectedness with their children.

Common values can be found among most Latino families.

- The concept of family, or *familismo*, is extremely important to many Latinos. Family needs come before individual needs, and this is evident in Latinos' desire to center many activities around the extended family.[138] Due to economic circumstances, Latino households may be large and include members of the extended family, which can be stressful in some cases and helpful in others, especially regarding childrearing.
- Traditional gender roles, *machismo* and *marianismo,* are often practiced in Latino families, especially in low-income families.[139,140] *Machismo* refers to the idea that the father is the head of the household, strong protector, and authority figure, whereas *marianismo* means the mother is self-sacrificing, religious and responsible for raising the children and maintaining the house.[141]
- Religion is also a cornerstone of the family and influences many beliefs and decisions within the family.[142] Most Latinos in the U.S. practice Catholicism, but practices within that faith may differ depending on the country of origin.[143] Because religion has been a part of Latino culture for so long, religious beliefs are difficult to separate from cultural values and often guide Latinos in many areas of life, even if they are not practicing religion.[142]

Many of these common qualities of Latino families—strong familial bonds, religious and cultural values, protective fathers and nurturing mothers—are beneficial for the development of Latino children and should be considered in early childhood education and development programs. Educators and community organizations should target programs to the entire family, including the extended family when feasible, and to mothers as caregivers and fathers as important decision-makers. Coordination with local religious institutions is also important to ensure that religious beliefs and cultural values are considered in program development.[144,145]

Programs and policies providing maternal and breastfeeding support and family support services promote healthy social and emotional development and overall wellbeing in Latino children.

Although Latino children are generally well adjusted socially and emotionally, several factors may negatively influence their overall health and wellbeing development. These include poverty and/or large households, immigration status, the country of origin, maternal depression,[1,146,147] as well as other factors like breastfeeding initiation and duration.[148]

Read the *Salud America!* research review about breastfeeding among Latina mothers.[148,149]

Approaches are emerging on how to address these issues. For example, mental health interventions can be made available to Latina mothers who are displaying negative thought patterns, including anxiety, depression, and self-doubt.[150] Providing outlets for mothers to talk with peers and trained counselors and/or nurses may help to reduce stress and improve intrapersonal awareness toward mental health and its effects on family and childrearing. In particular, home-based interventions have been successful in this population.[129,130128,129] The Latino family typically includes extended relatives, and sometimes friends, which may lead to several people living in one household. Latina mothers may shoulder many responsibilities

because of the family structure. Involving family members, especially partners, in helping with household responsibilities, including children's activities, may reduce the load that mothers carry in this culture.[127] Read the *Salud America!* research review about mental health and Latino children.[33]

Similarly, parent education classes could be offered to Latino parents to reinforce styles that are responsive, positive, and warm. Innovative approaches may include meeting with families in the home environment and learning about the challenges that exist from living with extended families, often in small areas. Addressing specific parenting skills, such as skill encouragement, monitoring discipline, and positive involvement), may be beneficial to immigrant parents.[131] Read the *Salud America!* research review about building support for Latino families.[98]

Conclusions and Policy Implications

Conclusions

Latino children are at increased risk of poor outcomes in many areas of early childhood development. Factors such as socioeconomic status, parenting behaviors, family structure and environment, childhood experiences, and access to early education programs and health services can influence many aspects of child development. High-quality preschool programs, parent-directed support and education, and family-, school- and community-based programs have all been shown to improve developmental outcomes in Latino children. Preventing, identifying, and helping children and families overcome ACEs can impact a child's social emotional development and chances of school success. Additional resources are needed to develop new, culturally appropriate programs and policies and/or improve upon those already in place, to further support Latino children in their formative years and beyond.

Policy Implications

To address adverse childhood experiences (ACEs) among Latino children:

- Improve access to home visits for Latino families by engaging community advocates, civil rights organizations, and other stakeholders who understand the needs in their communities; ensure that home visit programs are equitable and culturally sensitive to the needs of Latinos.
- Strengthen the childcare workforce through training to provide trauma-informed care for ACEs.
- Increase awareness of and support for the medical home system of care for Latino children that can help to identify and address ACEs and other health-related issues early.
- Increase collaboration between child welfare agencies and early intervention programs to provide mental health services to children experiencing difficulties due to ACEs.
- Develop culturally sensitive programs, policies and interventions considering Latino family structure and dynamics.
- Allocate funding for early-life interventions including prenatal care and parent education and support to prevent ACEs in at-risk families.

To extend the benefits of early care and education (ECE) and preschool programs:

- Promote access to and availability and awareness of preschool and early childhood education programs, especially for Latino children given the lower participation rates, to better address the cognitive gaps prevalent in this group.

- Incorporate culturally-relevant parent counseling, education, and support into all preschool programs.
- Reduce classroom sizes to promote greater teacher-student interaction and individualized education.
- Implement culturally-sensitive teacher education and training, especially targeted to overcoming poor school readiness among Latino children.
- Increase parent involvement in classrooms and home visits by educators to ensure reinforcement of preliteracy activities in the home.
- Ensure that at least one Spanish-speaking educator is present at preschools teaching Latino children.
- Support adoption of school design strategies to support active transport and increased student physical activity throughout the school day, such as outdoor learning environments or green schoolyards.

To improve Latinos' access to healthy food:

- Allocate funding to support community-based initiatives that improve access to grocery stores, health food stores, and farmers' markets in Latino communities.
- Partner with farmers' markets to develop long-term strategies for improving access to fresh fruits and vegetables in Latino communities.
- Increase access to culturally-appropriate healthy eating interventions and educational programs or activities (i.e., gardening) for Latino children and their families.
- Improve Latinos' access to school-, community-, and government-based food programs.

To increase Latinos' access to physical activity spaces and opportunities:

- Improve access to active spaces (parks, trails, green space, recreation sites) in Latino communities.
- Solicit community feedback to strengthen the development of new recreation sites and improvements in the built environment.
- Implement Complete Streets transportation projects near affordable housing, schools, grocery stores, and recreation sites to improve active travel to those sites.
- Construct affordable housing near public transit, employment centers, schools, grocery stores, and parks.
- Improve outdoor learning environments and green schoolyards at childcare centers and schools.
- Integrate considerations for non-motorized travel and public health into formalized planning processes, such as master plans, comprehensive plans, zoning code updates, housing and commercial developments, metropolitan planning organizations' (MPO) transportation improvement project lists, trail plans, and regional transportation plans, with specific focus on improving environments in low-income communities.
- Reform transportation spending at all levels to tie it to larger goals for health, safety, equity, and the environment—rather than to a focus only on traffic volumes and speeds.

To improve Latinos' healthcare access:

- Incorporate assessment of patients' childhood history in routine primary care visits to aid in the identification of presence or risk of ACEs, and implement culturally and linguistically relevant interventions.
- Advocate for early developmental-behavioral surveillance and screening, according to the American Academy of Pediatrics recommendations.
- Provide home visiting to ensure parents and caregivers have the time, knowledge, and resources needed to ensure proper childhood development.

- Incorporate physical activity as a patient “vital sign.”
- Support the capacity of school-based health clinics and programs to promote healthy eating and physical activity.

Future Research Needs

Further research is needed to identify the barriers to healthy eating in Latino children and evaluate current and new strategies for improving access and adherence to a healthy diet. Studies should also aim to identify the determinants of ACEs in Latino families and evaluate interventions for preventing ACEs and/or mitigating their harmful effects. The use of administrative data, such as Medicaid claims and other service records, may be useful for these studies and may help to target prevention and early intervention for children with or at risk of ACEs. More research is needed to identify the barriers to and predictors of mental health service use among Latino youth and develop the necessary assessment and counseling tools to identify at-risk Latino youth. More research is needed to identify the barriers to preschool participation and in-home preliteracy activities to inform the development of targeted in-home interventions to improve school readiness in Latino children. Accurate census data is also critical to ensure equitable distribution of funding for early educational programs, healthcare, safe places to walk and play, access to healthy food, and maternal and breastfeeding support. Additionally, further research is needed to evaluate the short- and long-term effects of existing preschool programs, such as Head Start, REDI, and MSRP, especially for Latino children, since this information is currently lacking. Finally, more research is needed to determine parent and teacher qualities that lead to educational success in Latino children and to evaluate strategies that promote the development of these qualities in Latino parents and teachers who teach Latino children.

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