

Review

The Determinants of Food Insecurity Among Hispanic/Latinx Households With Young Children: A Narrative Review

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ABSTRACT

Food insecurity has disproportionately impacted Hispanic/Latinx households in the United States, specifically those with young children. Although the literature provides evidence of an association between food insecurity and adverse health outcomes in young children, minimal research has addressed the social determinants and related risk factors associated with food insecurity among Hispanic/Latinx households with children under three, a highly vulnerable population. Using the Socio-Ecological Model (SEM) as a framework, this narrative review identified factors associated with food insecurity among Hispanic/Latinx households with children under three. A literature search was conducted using PubMed and four additional search engines. Inclusion criteria consisted of articles published in English from November 1996 to May 2022 that examined food insecurity among Hispanic/Latinx households with children under three. Articles were excluded if conducted in settings other than the US and/or focused on refugees and temporary migrant workers. Data were extracted (i.e., objective, setting, population, study design, measures of food insecurity, results) from the final articles (n = 27). The strength of each article's evidence was also evaluated. Results identified individual factors (i.e., intergenerational poverty, education, acculturation, language, etc.), interpersonal factors (i.e., household composition, social support, cultural customs), organizational factors (i.e., interagency collaboration, organizational rules), community factors (i.e., food environment, stigma, etc.), and public policy/societal factors (i.e., nutrition assistance programs, benefit cliffs, etc.) associated with a food security status of this population. Overall, most articles were classified as “medium” or higher quality for the strength of evidence, and more frequently focused on individual or policy factors. Findings indicate the need for more research to include a focus on public policy/society factors, as well as on multiple levels of the SEM with considerations of how individual and policy levels intersect and to create or adapt nutrition-related and culturally appropriate interventions to improve food security of Hispanic/Latinx households with young children.

Keywords: food security, early childhood, Hispanic/Latinx household, social determinants of health, risk factors, Socio-Ecological Model, low-income population

Statement of Significance

Understanding factors contributing to food insecurity is an essential first step in addressing the negative impacts on US households with young children. Using the SEM framework, this narrative review provides an overview of the current state of knowledge about the factors associated with food insecurity, particularly in Hispanic/Latinx households with children under the age of 3 y. Recognizing how multiple factors intersect and impact the food security status of the most vulnerable households is pivotal for developing and/or adapting interventions and promoting policies that improve access and availability of adequate and nutritious foods to these families, contributing to health outcomes.

Abbreviations used: SDOH, social determinants of health; SEM, Socio-Ecological Model; SNAP, Supplemental Nutrition Assistance Program; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children.

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Introduction

Food insecurity is a critical public health issue affecting millions of households in the United States [1]. In 2020, an estimated 14.8% of households with children (13.8 million) met the US Department of Agriculture (USDA) Economic Research Service definition of food insecurity—“limited or uncertain availability of nutritionally adequate and safe foods, or limited or uncertain ability to acquire acceptable foods in socially acceptable ways [2].”

Historically, the reported prevalence of food insecurity of underrepresented groups in the US has been statistically higher than the national average for all US households [3]. In 2020, the rate of food insecurity was higher for Hispanic (17.2%) than for White, non-Hispanic (7.1%) households [4]. Similarly, across racial/ethnic groups, the prevalence of food insecurity in households with children under 6 was higher (15.3%) than the national average for all US households (10.5%) [5]. Hispanic/Latinx children were more than twice as likely to live in food-insecure households as White children [6].

Several studies have found that children under three living in food-insecure households have poorer overall health than children living in food-secure households [7–9]. For instance, infants and toddlers in these food-insecure households have an increased risk of developing congenital disabilities, anemia, cognitive problems, aggression, and anxiety [10–13]. Thus, adequate and age-appropriate dietary intake in the first 1000 days of life is pivotal for a child’s growth and development [14].

Although the existing body of research provides evidence of an association between food insecurity and adverse health outcomes in young children, minimal research has been conducted to address the social determinants of health (SDOH) associated with food insecurity among Hispanic/Latinx households with children under age three [11, 15–17]. SDOH refers to “conditions in the places where people live, learn, work, and play that affect a wide range of health and quality of life—risks and outcomes” [18]. SDOH can be grouped into five domains, including 1) economic stability, 2) education access and quality, 3) health care access and quality, 4) neighborhood and built environment, and 5) social and community context [18]. Food insecurity in the context of SDOH results from a combination of economic and social structural barriers, creating short and long-term effects on the health, and well-being of individuals living in these households [19].

Research has found that food-insecure households with young children are less likely to consume a nutrient-dense diet than food-secure households with young children, which has been associated with increased body weight, risk of chronic disease, and poor health outcomes [20–24]. Understanding the multiple levels of influence contributing to food security in Hispanic/Latinx households with young children is an essential first step to addressing the needs and barriers of US households with young children. The Socio-Ecological Model (SEM) has been previously applied to address the determinants of health associated with food insecurity and other health behaviors, including obesity and other chronic diseases [25, 26]. This model places the individual at the center of the ecosystem, providing an integrative framework to identify the multiple factors (i.e., innate characteristics and/or sociocultural environment) that contribute to food insecurity in Hispanic/Latinx households with young children [27].

This narrative review provides an overview of the determinants contributing to food insecurity among Hispanic/Latinx households with children <3 y old by applying the SEM. Only studies focused on documented Hispanic/Latinx caregivers living in US households were included in this review. Specific objectives of this narrative review include: 1) providing an overview of the current state of knowledge about factors associated with food insecurity among US Hispanic/Latinx households with children under the age of three based on the SEM; 2) classifying the strength of the evidence to identify predominant research gaps and future research directions to reduce food insecurity within this population; and 3) providing practice and policy-based recommendations for the development and evaluation of interventions that intend to reduce food insecurity of Hispanic/Latinx households with young children.

Methods

This narrative review consisted of a search of peer-reviewed scientific literature and a snowball search of the reference sections of retrieved articles to inform the criteria needed to address the review objectives. Additional online searches were conducted to identify reports and documents from organizations actively involved in advancing equitable access to nutritious food for underserved populations, specifically Hispanic/Latinx groups (e.g., UnidosUS, Urban Institute, Brookings, and Feeding America—Latino Hunger Research).

Before initiating the literature search, inclusion and exclusion criteria were defined to identify the articles of interest. Inclusion criteria consisted of articles published in English that examined food insecurity among Hispanic/Latinx households with children in the age range of 0 to 3 y old in the US. Studies published after November 1996 (i.e., the year when food security was defined at the World Food Summit) and available until May 4, 2022 were included [28]. Observational and experimental studies, including both qualitative and quantitative, were included if they explored or evaluated risk factors associated with food insecurity among Hispanic/Latinx households with young children. Articles were excluded if they were conducted outside the US and/or focused on undocumented immigrants, refugees, or temporary migrant workers. Research suggests experiences of the groups mentioned above differ from other Hispanic/Latinx groups [29, 30].

Research databases included PubMed, Cumulative Index to Nursing and Allied Health Literature, Web of Science, Google Scholar, and Google search engine. The search strategy was developed with support from the University of Florida librarian. *Medical Subject Headings* (i.e., MeSH terms in PubMed), *Subject Headings* (i.e., MH in Cumulative Index to Nursing and Allied Health Literature), and *Research Area* (i.e., SU in Web of Science) were identified and included in the search strategy. For instance, the search included MeSH-compliant keywords: Food Supply, Infant, Child, Preschool, and Infant Health. All other search terms related to “Food Security,” “Young Children,” and “Hispanic /Latinx” were searched under title and abstracts. Terms under “Contributed Factors” were only included in the search strategy for Web of Science to minimize limiting the research results. The final search strategy respective to each database is outlined in [Supplemental Table 1](#). Google Scholar and Google

engine searches were utilized to identify gray literature (i.e., reports and other documents published from relevant organizations and websites).

The search for this narrative review was conducted in May 2022 by one of the authors (EGV), resulting in an initial total of 1052 records. After duplicated search results were excluded using Covidence [31], a screening and data extraction tool, 596 articles were screened by one of the authors (EGV). Only 87 articles were selected for a full review, and 20 of these articles matched the inclusion criteria. Additional articles (n = 3) were identified by scanning the reference sections. Articles identified through gray literature (n = 4) search were also added to the review. Thus, a final total of 27 articles were included in this narrative review. Figure 1 provides a detailed summary of the sample selection process.

An Excel spreadsheet was used to extract and organize data from the final articles (n = 27). Data were extracted by one of the authors (EGV) and included: study reference, aim and purpose, setting and population, study design, measures of food insecurity, primary findings, and strength of evidence (Table 1). The strength of evidence of each article was evaluated using a scoring system derived from a prior published report on systematic approaches to assess the strength of scientific evidence [32]. The scoring system was used to rate the quality of each article by the

lead author (EGV) based on defined elements and domains identified for different types of studies, including systematic reviews, randomized controlled trials, observational studies, and studies of diagnostic tests [32]. For instance, when rating the quality of observational studies, the author (EGV) reviewed the following elements: comparability of subjects, exposure or intervention, outcome measurement, statistical analysis, and funding or sponsorship [32]. As indicated by West et al. [32], the report indicates that if a study contained ≥75% of the evaluated elements, it was rated high in quality. If a study met <75% but >25% of the evaluated elements, it was rated as medium in quality, and if a study contained <25% of the evaluated elements, it was rated low in quality.

This narrative review also utilized SEM as a framework to conceptualize the determinants of food insecurity among Hispanic/Latinx households with young children. The SEM consists of five levels of influence: individual, interpersonal, community, organizational, and policy, systems, or environment levels [27]. It provides a visual depiction of SDOH and other factors within the respective levels of influence that may impact the food security status of Hispanic/Latinx households with young children. As such, one of the authors (EGV) classified the SDOH identified in each peer-reviewed article and gray literature within the different levels of influence of the SEM (Table 2).

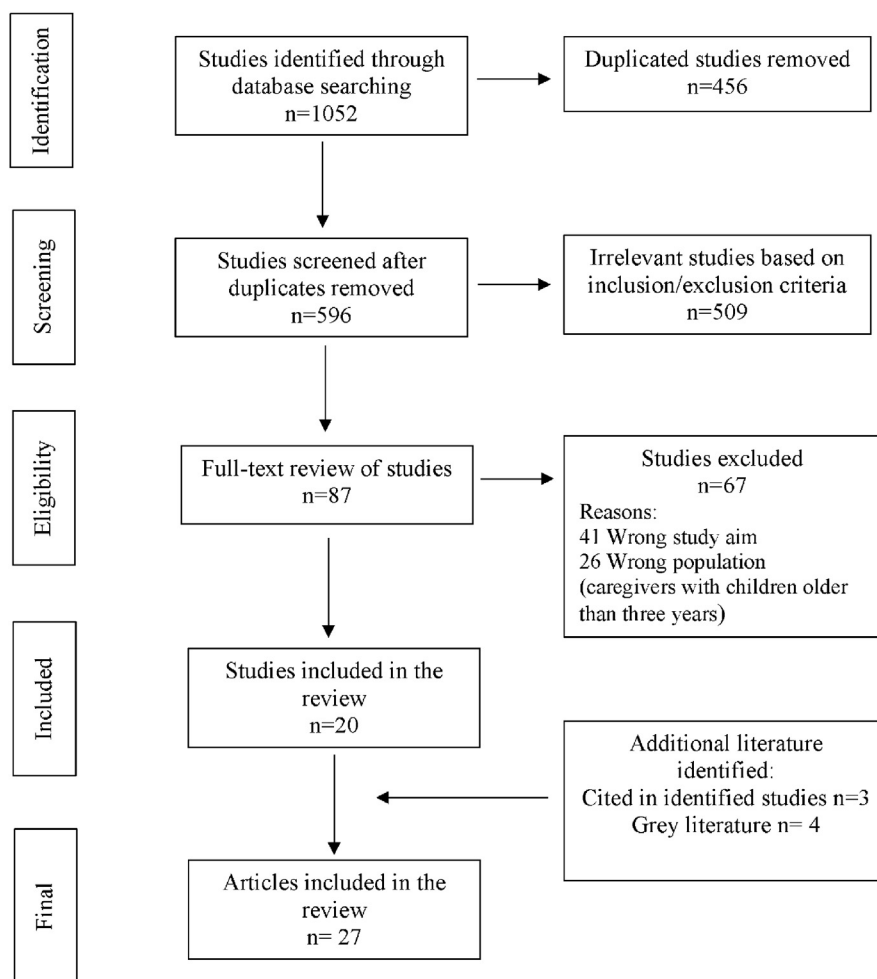


FIGURE 1. Summary of the sample selection process.

TABLE 1

Overview, main findings, and strength of evidence of peer-reviewed studies and gray literature: narrative review examining food insecurity among Hispanic/Latinx households with children under the age of three (n = 27)

Reference	Aim/Purpose	Setting/Population	Study Design	Key Variables/ Inclusion Criteria	Measure of Food Insecurity	Main Findings	Strength of evidence
Abrams et al., 2020 [34]	Determine how the pandemic has affected families' food insecurity.	Families receiving care at FQHC clinics in Austin, Texas, US; (n = 200).	Qualitative	Food Insecurity COVID-19 Socio-Demographic Characteristics	2-Item USDA Household Food Security Module/ Screener	<ul style="list-style-type: none"> High rates of food insecurity despite most families receiving WIC benefits and some receiving SNAP benefits. Food-insecure families eligible for benefits were not accessing available resources because of language barriers, missed appointments, lack of transportation, and fear and uncertainty about the public charge rule. 	High Limited generalizability
Arteaga et al., 2021 [49]	Examine the relationship between SNAP participation and infant well-child visits using state administrative data from Missouri's Department of Social Services from January 2006 to July 2014 for >50,000 infant-mother dyads.	First-born children of low-income mothers aged 18 and older in Missouri participating in SNAP and Medicaid, (n = 51,551 children: infant-mother dyads).	Cross-sectional	Well-child visits Immunizations Months of SNAP participation Patterns of SNAP participation Child and mother demographic characteristics	Not Applicable	<ul style="list-style-type: none"> Households that leave SNAP have more demanding work obligations that limit flexibility to keep appointments or find it challenging to comply with the administrative burden associated with recertification. There is a negative association between SNAP dynamics and well-child visits for children living in urban areas (compared with children living in rural areas) and black and Hispanic children (in contrast to White children). 	Medium Variable bias Analyses were descriptive and could not explore how SNAP may affect child-well visits. Limited generalizability.
Berg et al., 2013 [40]	Understand relationships between parent and child weight status, parental perceptions of weight, child feeding, food insecurity, and acculturation.	Hispanic parent-child (2–5 yrs.) dyads in southern California, US; (n = 85).	Cross-sectional	Parent And Child Weight Status Parental Perceptions of Weight Child Feeding Food Insecurity Acculturation	The Household Food Insecurity Access Scale	<ul style="list-style-type: none"> Parents' perception of their children's body size, responsibility for feeding, and degree of food insecurity were associated with concern over bodyweight and monitoring, restricting, and pressuring feeding behaviors. 	Low Small sample size Measure used for calculating BMI ¹ Cross-sectional data prevent the drawing of causal inferences.
Bermúdez-Millán et al., 2011 [35]	Understand the social determinants of health of Puerto Rican women, emphasizing the determinants likely to affect maternal health and pregnancy outcomes.	Puerto Rican women, pregnant or with young children in the cities of Hartford and Willimantic, Connecticut, US; (n = 29)	Qualitative	Self-Perceived Discrimination Based on Race/Ethnicity Poverty Food Insecurity Education Health Care Access and Treatment Physical Environment, Working Conditions	Three Interview Guide Questions	<ul style="list-style-type: none"> Participants report inadequate income to meet their basic needs and challenges in prioritizing how to spend money in the face of poverty. Since childhood, food insecurity experiences, lack of knowledge of how to access resources, lack of social/financial support, and the ratio of food portions (self v. children) were reported. Food assistance programs, such as WIC and SNAP, helped but did not provide enough to feed the family for the entire month. 	High Limited generalizability Some of the focus groups were conducted in Spanish, and others in English
Buscemi et al., 2011 [41]	Determine if food insecurity was a predictor of BMI percentile and to	Latino children ages 2–17 of both immigrant and nonimmigrant parents in Memphis,	Cross-sectional	Child Anthropometric Measures Parent Socio-Demographic	The Core Food Security Measure	<ul style="list-style-type: none"> Lower-income families tend to be more food insecure and unable to provide high-cost foods to their children (and less food in general). 	Low A significant amount of food insecurity and acculturation data missing and not

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TABLE 1 (continued)

Reference	Aim/Purpose	Setting/Population	Study Design	Key Variables/ Inclusion Criteria	Measure of Food Insecurity	Main Findings	Strength of evidence
	examine acculturation as a moderator.	Tennessee, US; (n = 63).		Characteristics Parental Acculturation Food Insecurity		<ul style="list-style-type: none"> Parents who reported their families to be more acculturated had higher food security than those who reported lower acculturation levels. 	included in the analyses Cross-sectional data prevent the drawing of causal inferences. Medium
Chavez et al., 2007 [42]	Examine ethnic differences in Latino child health services use and describe and compare health and nutrition attitudes and practices.	Mexican, Puerto Rican, or other Hispanic mothers of children ages 3–8 in Chicago, Illinois, US; (n = 320).	Cross-sectional	Food Insufficiency Acculturation Socio-Demographic Characteristics	10-Item Radimer/ Cornell Measure of Hunger and Food Insecurity NHANES III (Family Questionnaire And 24-h Recall)	<ul style="list-style-type: none"> Families did not have enough food to eat because of not having enough money, SNAP, or WIC benefits to purchase food and transportation. More than half of the mothers in food-insufficient families did not know where to seek food if they were short of money. 	Although the food insufficiency scales and questions used in this study had been validated, they were not validated for the Latino population Small sample size Cross-sectional data prevent the drawing of causal inferences. Medium
Chilton et al., 2009 [43]	Investigate the risk of household food insecurity and reported fair or poor health among very young children who were US citizens and whose mothers were immigrants.	Mothers with children aged 0–3 in Minneapolis, Minnesota, US; (n = 19,275).	Cross-sectional	Child Anthropometric Measures Food Insecurity	USDA 18-Item Food Security Scale	<ul style="list-style-type: none"> Households with immigrant mothers in the country for 11 or more years were at a higher risk of food insecurity than households with US-born mothers. Factors include exposure to the US education system and better English language (greater potential earnings or awareness of and access to public assistance programs). 	Recall bias, shared method bias, cultural differences Cross-sectional data prevent the drawing of causal inferences. Medium
Denney et al., 2020 [44]	Understand if household characteristics within a residential context are important for household food insecurity.	Kindergarten-age children who live in 2,951 Census tracts in the US; (n = 8600).	Cross-sectional	Household Food Insecurity Child And Household Socio-Demographics Primary Caregiver Depression Level Household-Level Measures of Poverty	USDA's 18-Item Food Security Scale	<ul style="list-style-type: none"> Contextual congruence may reflect greater connectedness to others and integration into communities of others experiencing similar circumstances (i.e., families rely on social networks to acquire and share resources necessary to feed a household adequately) Spatial stigma is a risk factor for poor residents in high-poverty neighborhoods. It makes them develop strategies to deal with food insecurity, like how they navigate other challenges. 	High Any possible benefits of contextual incongruence for household food security status might require a more extended period Cross-sectional data prevent the drawing of causal inferences. Low
Dhokarh et al., 2011 [45]	Examine associations between acculturation indicators and food insecurity and the influence of social networks and reciprocity on food insecurity.	Puerto Rican heads of the household with children between 12 and 36 mo of age in Hartford, Connecticut, US; (n = 200).	Cross-sectional	Food Insecurity Acculturation Social Networks and Reciprocity	10-Item Radimer/ Cornell Measure of Hunger and Food Insecurity	<ul style="list-style-type: none"> Associations between food insecurity and unemployment, and food insecurity and a single female-headed household. Attending Latino cultural events was strongly associated with food security (social networking and access to social capital within the community). A lower level of acculturation (proxied by speaking only Spanish) was identified as a risk factor for food insecurity. 	Data was collected over 10 y. The main conclusion does not allow for the assessment of causality and the temporal sequence of events Cross-sectional data

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TABLE 1 (continued)

Reference	Aim/Purpose	Setting/Population	Study Design	Key Variables/ Inclusion Criteria	Measure of Food Insecurity	Main Findings	Strength of evidence
						<ul style="list-style-type: none"> Households where food stamps lasted for the whole month were more likely to be food secure than those where the food stamps did not last for the entire month. 	prevent the drawing of causal inferences.
Escobar et al., 2021 [58]	Examine the impact of COVID-19 on household and child food security in three preexisting, longitudinal, Latinx urban cohorts.	Hispanic mothers with young children in San Francisco, California, US; (n = 1875).	Research Report (not peer-reviewed)	Food Insecurity Food Assistance COVID-19 Symptoms	USDA's 18-Item Food Security Scale	<ul style="list-style-type: none"> High food insecurity among three Latinx cohorts in the San Francisco Bay Area suggests rapid growth of food insecurity in urban areas impacted by COVID-19 shut-downs (resulting in unemployment). 	Not Applicable
Gonzalez, A. 2020 (Center for Primary Care: Harvard Medical School) [59]	Discuss how COVID-19 Exacerbates Food Insecurity in Latino Children & Families.	Latino young children and families in the US.	Report not peer-reviewed	Not Applicable	Not Applicable	<ul style="list-style-type: none"> COVID-19 has reinforced the importance of access to nutritious food and highlighted the critical role of federal nutrition programs in helping families make ends meet. Limited access to and availability of culturally responsive and linguistically appropriate information prevents many eligible Latinos from participating in federal nutrition programs. 	Not Applicable
Gross et al., 2019 [36]	Obtaining a better understanding of obesity-promoting infant-feeding beliefs, styles, and practices in the context of food insecurity.	Low-income Hispanic mother-infant pairs participating in an early childhood obesity prevention study at a large urban public hospital in New York City, New York, US; (n = 100).	Qualitative nested with a Randomized Controlled Trial	Food Insecurity Financial Pressures Infant And Toddler Feeding	Interview Guides Informed by The Core Food Security Module-USDA	<ul style="list-style-type: none"> Difficulty meeting basic needs while simultaneously paying for household expenses. Job instability, prolonged unemployment, and loss of work hours led to increased vulnerability to food insecurity. Pregnancy and infancy increase vulnerability to food insecurity because of changes in employment, physical limitations, new infant-related expenses, and health complications. Mothers worried that if breast milk were insufficient, the formula would be needed, expensive, and not always available. Mothers of older infants and toddlers limited each family member's portion sizes. Healthier, more expensive food, such as fruits and vegetables, were particularly limited. Families made shopping lists and relied on inexpensive staples to prevent unnecessary purchases and food waste. Social support networks, such as extended family, friends, and churches, provided safety nets when household strategies proved insufficient. Mothers suggested difficulty obtaining services (i.e., WIC and SNAP) or funds not lasting the whole month. 	Medium Limited generalizability The trial excluded the most marginalized families, including those with homelessness or severe mental illness.

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TABLE 1 (continued)

Reference	Aim/Purpose	Setting/Population	Study Design	Key Variables/ Inclusion Criteria	Measure of Food Insecurity	Main Findings	Strength of evidence
Himmelgreen et al., 2000 [33]	Examine hunger and food insecurity among low-income Hispanics in Hartford, Connecticut, using the Radimer/Cornell Scale and the associations of specified variables (e.g., socio-demographics and food-assistance participation) with food insecurity.	Low-income Hispanic caretakers of children ≥ 1 -y-old but younger than 6 y, recruited between July 19, 1995, and October 10, 1996, in Hartford, Connecticut, US; (n = 248).	Retrospective Cohort	Food Insecurity Food Stamps Run Out Before the End of The Month Caretaker Head of Household Child Enrollment in Preschool/ Kindergarten Program Maternal Age Emergency Food Assistance	10-Item Radimer/ Cornell Measure of Hunger and Food Insecurity	<ul style="list-style-type: none"> Children not attending preschool or kindergarten and residing in households running out of food stamps before the end of the month are more likely to be exposed to hunger and food insecurity. Low wages and unstable employment leave many families with inadequate access to food. Families moving off public assistance and becoming the working poor have limited access to food and income. As a result, they lose eligibility for food assistance, receive lower food assistance benefits, or enroll in such programs. Recipient management of food stamps may also influence whether food stamps will last until the next month's allotment, increasing the prevalence of food insecurity. Along with lower socioeconomic status, food insecurity was identified concerning weight status. Parents who reported their families to be more acculturated have higher food security. 	Low Data collected before national welfare reform changes (1995–1996)
Innella et al., 2016 [54]	Identify factors that influence obesity in Hispanic preschool children and factors needing further investigation.	N = 35 (articles) conducted in the US.	Integrative Review	Inclusion Criteria: Peer-Reviewed Articles Published between 2009–2014, With 50% Or More Of The Participants Either Parents/ Caregivers of Preschool-Age Children or Preschool-Age Children And 50% Or More Participants Were Hispanic.	Not Applicable	<ul style="list-style-type: none"> Among low-SES families, the availability of food near home is an important aspect of accessibility. Supermarket proximity to home is the most important factor in shopping there. 	Low Lack of detailed explanations about statistical significance in some of the quantitative studies
Johnson et al., 2020 [53]	Examine the association of neighborhood food environment and childhood weight status among 2–5 y old.	Black and Hispanic children aged 2–5 in Baltimore, Maryland, US; (n = 3724).	Retrospective Cohort	Body Mass Index Z-Score Healthy Food Availability Index WIC ² Store Availability Fast Food Availability Child Socio-Demographics	Not Applicable	<ul style="list-style-type: none"> The cost of and perceptions that fruits and vegetables do not satisfy hunger and are not well-liked by the children may explain why these foods are particularly lower in food-insecure Latino households. 	Medium Limited generalizability
Kaiser et al., 2003 [46]	Examine the relationship between food insecurity and food supplies in Latino households.	Low-income Latino households with preschool children in six counties of California, US; (n = 274).	Cross-sectional	Food Insecurity Food Supplies Maternal And Child Body Mass Index Child Frequency of Food Consumption	USDA's 18-Item Food Security Scale	<ul style="list-style-type: none"> The cost of and perceptions that fruits and vegetables do not satisfy hunger and are not well-liked by the children may explain why these foods are particularly lower in food-insecure Latino households. 	High Limited generalizability The list of the most reported food supplies by these Californian Latino

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TABLE 1 (continued)

Reference	Aim/Purpose	Setting/Population	Study Design	Key Variables/ Inclusion Criteria	Measure of Food Insecurity	Main Findings	Strength of evidence
Kamdar et al., 2019 [47]	Examine the effects of food insecurity on a child's body mass index through a complex series of pathways that involve parental feeding demandingness and responsiveness and child dietary quality.	Hispanic parent-preschooler (4-5 y) dyads in Houston, Texas, US; (n = 137).	Cross-sectional	Mother's Socio-Demographics Food Insecurity Parental Feeding Demandingness And Responsiveness Dietary Quality Maternal And Child Body Mass Index Acculturation	6-Item Household Food Security Survey	<ul style="list-style-type: none"> Food insecurity was associated with a lower variety of nutrient-dense foods when controlling for mothers' education. Because of the limited sample size of acculturated Latino participants, this study could not report the effects of food insecurity and acculturation on household supplies. Families enrolled in a food assistance program, used food pantries, and/or implemented the nutrition education received in Head Start and other coping strategies associated with household food security and the child's dietary quality. 	families is very similar to that reported in the Chicago validation study Cross-sectional data prevent the drawing of causal inferences. Medium Limited generalizability Self-report bias Cross-sectional data prevent the drawing of causal inferences.
Keith-Jennings et al., 2021 [56]	CBPP analysis of data from the Census Bureau's ongoing Household Pulse Survey from April 2020 through late March 2021	US Census population.	Report not peer-reviewed	Food Insecurity	Census Bureau's Ongoing Household Pulse Survey from April 2020-March 2021	<ul style="list-style-type: none"> Some food-insecure households faced access barriers to receiving SNAP benefits as states have struggled to accommodate the significant increase in applicants, especially while shifting to virtual operations because of the pandemic. Families with trouble affording food may still have income above SNAP's income limits or face other eligibility restrictions. Many families experienced long lags between the loss of school meals for their children and the start of P-EBT benefits, and most did not receive P-EBT from the summer of 2020 through early 2021. Some families may not have known what assistance was available to them or had difficulty navigating the different programs amid other pandemic-caused disruptions. Factors outside the scope of food assistance, such as low-paying jobs and high housing costs, also contribute to food insecurity. 	Not Applicable
Lindsay et al., 2009 [37]	Explore immigrant Latina mothers' perceptions of factors that act as barriers to establishing their preschool-aged children's healthy eating and physical activity habits.	Latina mothers and their preschool-aged children in Boston, Massachusetts, US; (n = 51).	Qualitative	Barriers To Establishing Healthy Eating and Physical Activity Habits	Not Applicable	<ul style="list-style-type: none"> Economic constraints, food pricing, and food insecurity were significant barriers to providing healthful meals for their families. Selected foods based on price, seeking out sales and specific stores to purchase healthy foods. Reliance on eating out because of the widespread availability of fast food restaurants that are less 	Medium Limited generalizability Recall bias, shared method bias, cultural differences

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TABLE 1 (continued)

Reference	Aim/Purpose	Setting/Population	Study Design	Key Variables/ Inclusion Criteria	Measure of Food Insecurity	Main Findings	Strength of evidence
McCurdy et al., 2022 [50]	Examine the relationships between food security status, food parenting practices, and child eating behaviors in a predominately Hispanic, low-income sample of parents and preschool-aged children.	Hispanic, low-income parents and their preschool-aged (2–5y) children; (n = 66).	Cross-sectional	Food insecurity Food parenting practices Child eating behaviors Demographic and anthropometric characteristics	2-Item USDA Household Food Security Module/ Screener	<p>expensive, child-friendly, and advertise foods to children.</p> <ul style="list-style-type: none"> • Proximity and accessibility to grocery stores influenced food shopping choices and children's diets. • Limited social support (e.g., from friends and neighbors) and feelings of isolation (since immigrating to the US) influenced daily lives. • Food-insecure families reported incomes of <\$25,000 and lower levels of employment and food assistance receipts than food-secure families. • Food insecurity was significantly associated with three child eating behaviors- food responsiveness, enjoyment of food, and satiety responsiveness. Households increased preschoolers' responsiveness to food, described as the child "wanting" food and their enjoyment or "liking" food. • Food parenting practices did not mediate an association between food insecurity and child eating behaviors; however, they were associated with three child eating behaviors in the exploratory analyses. 	Medium The small sample size reduced the power to finding significant Associations Limited generalizability Cross-sectional data prevent the drawing of causal inferences. Self-report could have led to social desirability bias and measurement error
Nederveld et al. 2021 [39]	Understand the health behaviors of families with young children facing food insecurity in western Colorado. Specifically, parents on limited incomes use strategies to feed their children, their understanding of nutrition for their children, and the social factors contributing to or alleviating food insecurity.	Parents of young children from Mesa County, Colorado receiving WIC benefits–9 reported Latinx heritage (n = 20).	Qualitative	Strategies for families with food insecurity to navigate health behaviors in their social context	USDA's 18-Item Food Security Scale	<ul style="list-style-type: none"> • Participants knew healthy eating behaviors but struggled to implement these in their families' lives because of expense and income instability, health or other circumstances, and competing priorities. • Parents used detailed budgeting schemes and did their best to model healthy behaviors. • Parents rely on family and social network support or organizations, including food assistance programs, to support healthy behaviors in their families. 	Medium Limited generalizability Recall bias, shared method bias, cultural differences
Ochoa et al., 2017 [55]	Summarize and critically review the cross-sectional and longitudinal research conducted between 2005 and 2015 on key factors in the home environment of Latino children.	n = 7 (articles).	Narrative Review	Factors Within the Home Environment That Were Potential Factors Influencing Childhood Obesity Risk.	Not Applicable	<ul style="list-style-type: none"> • Marginal or low/very low food-secure caregivers reported significantly more obesity-promoting foods in the home, more microwavable or quick-cook frozen foods, and greater access to less healthful foods in the kitchen because of the high cost of healthier foods. 	Medium Lack of detailed explanations about statistical significance in some of the studies

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TABLE 1 (continued)

Reference	Aim/Purpose	Setting/Population	Study Design	Key Variables/ Inclusion Criteria	Measure of Food Insecurity	Main Findings	Strength of evidence
Pineros-Leano et al., 2019 [38]	Understand how Latina immigrant mothers make feeding decisions for their children using the Socio-Ecological Model.	Mothers from Latin American countries whose preschoolers were enrolled in WIC (n = 29).	Qualitative	Mother's decision-making around feeding choices	Not applicable	<ul style="list-style-type: none"> • Latina immigrant mothers engage in a multilayered and challenging process when deciding how to feed their children. • Barriers include culture, location, access to fresh and traditional food, the disjunction between health provider advice and cultural knowledge, responsiveness to family needs and wants as determinants of food choices, and intrapersonal conflict stemming from childhood poverty and food insufficiency. 	Medium Limited generalizability Recall bias, method bias (did not collect health status measures), cultural differences
Sharkey et al., 2013 [48]	Determine the prevalence of child hunger and identify protective and risk factors associated with hunger among children.	Mexican-origin mothers with children under the age of 5 in 44 <i>colonias</i> in two geographic areas in Texas (n = 470).	Cross-sectional	Individual, Economic, Family, And Community Resources Childhood Hunger	12-Item Radimer/Cornell Measure of Hunger and Food Insecurity	<ul style="list-style-type: none"> • More households with child hunger shopped for groceries at a supercenter or dollar store than households without child hunger. • Almost 30% of households with children under five did not participate in WIC. 	Medium Self-report bias Data did not attribute child hunger to specific children, or how the availability of food varied among household members Cross-sectional data prevent the drawing of causal inferences. Not Applicable
Schanzenbach et al., 2020 [57]	Describe levels and trends in food insecurity among households with children by the race/ethnicity of the adult respondent for the household.	Individuals who responded to Census Household Pulse Survey.	Rapid Research (Report not peer-reviewed)	Food Security Socio-Demographics	Census Household Pulse Survey	<ul style="list-style-type: none"> • Black and Hispanic households with children are much more likely to experience food hardships than White families. • Current employment status, expectations about future income losses, and the ability to afford necessities are related to disparities across racial and ethnic groups. 	Not Applicable
Steimle et al., 2021 [52]	Investigates the implications of COVID-19 for families' food insecurity and parent and child psychological distress and how receipt of food assistance programs may have buffered those effects.	Low-income families in rural Pennsylvania; Latinx 60.7% (N = 173-271).	Cross-sectional exploratory design (Longitudinal study)	Food insecurity Parent psychological distress Child psychological distress Food assistance usage Demographics	Current Population Survey Food Security Supplement	<ul style="list-style-type: none"> • Although food insecurity and parent and child psychological distress increased significantly at school closures, FI levels reduced over time, particularly for those using the Power Packs Project. Conversely, parent and child psychological distress remained high. • SNAP receipts were associated with more significant declines in child FI. Nevertheless, evidence indicates federal support could not reach families as quickly as local programs. 	Medium Limited generalizability Interruption time-series approach Lack of randomization Cross-sectional data prevent the drawing of causal inferences.

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TABLE 1 (continued)

Reference	Aim/Purpose	Setting/Population	Study Design	Key Variables/ Inclusion Criteria	Measure of Food Insecurity	Main Findings	Strength of evidence
Ventura et al. 2022 [51]	Describe WIC participants' experiences with remote service delivery and recertification during the pandemic.	Mothers and infants who participated in a WIC-based intervention between June 2019–August 2020; (n = 246).	Cross-sectional study	Food Insecurity COVID-19 WIC participation (i.e., experiences with remote recertification and remote engagement services) Demographics	USDA 6-item Household Food Security Screener	<ul style="list-style-type: none"> Stay-at-home and social distancing mandates disrupted traditional methods of service delivery, including in-person clinic visits and sharing physical documents for program recertification. WIC clinics implemented under-utilized alternatives to in-person service delivery, such as virtual visits and electronic document sharing. One-third of participants felt comfortable sharing their information through virtual methods. Most participants reported they were satisfied with their experiences with WIC during the pandemic. Most thought the quality of services was the same or better, with 25% of participants preferring WIC services to remain fully remote. During the pandemic, WIC participants experienced challenges finding WIC-eligible foods when shopping at grocery stores and faced stigmatization when attempting to use their WIC benefits during store checkout. 	High Recall bias Limited generalizability

CBPP, Center on Budget and Policy Priorities; FQHC, Federally Qualified Health Centers; P-EBT, Pandemic Electronic Benefit Transfer; SES, socioeconomic status; SNAP, Supplemental Nutrition Assistance Program; WIC, The Special Supplemental Nutrition Program for Women, Infants, and Children.

TABLE 2

Levels of influence of the Socio-Ecological Model (SEM), social determinants of health, and corresponding peer-reviewed studies and gray literature examining food insecurity among Hispanic/Latinx households with children under the age of three

Level of Influence Articles including at least one factor at SEM level, n)	Definition	Social Determinants of Health	Factors	Source
Individual (n = 21)	The first level identifies an individual's biological components and personal history factors. These factors help predict an individual's likelihood of becoming susceptible to a health condition or engaging in a particular health-related behavior.	Demographics Biological markers Psychological factors Knowledge Attitudes	1. Education Level 2. Income Level 3. Marital Status 4. Language Proficiency 5. Acculturation Level 6. Nutrition Knowledge 7. Food and feeding preferences 8. COVID-19 fear	1. Kaiser et al., 2003 [46] 2. Bermúdez-Millán et al., 2011 [35], Chavez et al., 2007 [42], Dhokarh et al., 2011 [45], Gross et al., 2019 [36], Innella et al., 2016 [54], Johnson et al., 2020 [53], Lindsay et al., 2009 [37], McCurdy et al. 2022 [50], Nederveld et al. 2021 [39], Ochoa et al., 2017 [55], Schanzenbach et al., 2020 [57] 3. Dhokarh et al., 2011 [45], Gross et al., 2019 [36] 4. Abrams et al., 2020 [34] 5. Buscemi et al., 2011 [41], Chilton et al., 2009 [43], Denney et al., 2020 [44], Gross et al., 2019 [36], Innella et al., 2015 [54], Pineros-Leano et al., 2019 [38] 6. Bermúdez-Millán et al., 2011 [35], Chavez et al., 2007 [42], Gross et al., 2019 [36], Himmelgreen et al., 2000 [33], Kaiser et al., 2003 [46], Kamdar et al., 2019 [47], Lindsay et al., 2009 [37], Ochoa et al., 2017 [55], Pineros-Leano et al., 2019 [38], Nederveld et al. 2021 [39] 7. Berg et al., 2013 [40], Buscemi et al., 2011 [41], Gross et al., 2019 [36], Pineros-Leano et al., 2019 [38], McCurdy et al. 2022 [50] 8. Abrams et al., 2020 [34]
Interpersonal (n = 11)	The second level examines an individual's formal and informal social networks and social support systems. Social circles play an important role in influencing an individual's behavior, as these relationships contribute to forming personal experiences and affect decision-making.	Social networks (family, friends, workgroup) Traditions Customs/Rituals	1. Social networks (family and friends) 2. Culture/Customs	1. Abrams et al., 2020 [34], Bermúdez-Millán et al., 2011 [35], Chavez et al., 2007 [42], Denney et al., 2020 [44], Dhokarh et al., 2011 [45], Gross et al., 2019 [36], Lindsay et al., 2009 [37], Nederveld et al. 2021 [39], Pineros-Leano et al., 2019 [38] 2. Gonzalez, A. 2020 [59], Pineros-Leano et al., 2019 [38]
Community (n = 4)	The third level explores the settings in which relationships occur. It primarily focuses on the relationships among organizations and institutions and how these can influence behavior at an individual or group level. This level of influence also emphasizes the environmental support within the community, including the built environment.	School Worksite Church Businesses Community centers Built environment Institutions	1. Interagency collaboration 2. Organizational rules and procedures	1. Keith-Jennings et al., 2021 [56] 2. Abrams et al., 2020 [34], Escobar et al., 2021 [58], Keith-Jennings et al., 2021 [56], Steimle et al., 2021 [52]
Organizational (n = 11)	The fourth level focuses on the organizations or social institutions that create rules and regulations that affect the operation and management of services provided to individuals or groups.	Neighborhoods Organizations Societal institutions	1. Food Environment 2. Stigma 3. Social capital	1. Denney et al., 2020 [44], Gross et al., 2019 [36], Johnson et al., 2020 [53], Lindsay et al., 2009 [37], Ochoa et al., 2017 [55], Pineros-Leano et al., 2019 [38], Sharkey et al., 2013 [48], Ventura et al. 2022 [51] 2. Ochoa et al., 2018 [55], Ventura et al. 2022 [51] 3. Dhokarh et al., 2011 [45], Steimle et al., 2021 [52], Nederveld et al. 2021 [39]

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TABLE 2 (continued)

Level of Influence Articles including at least one factor at SEM level, n	Definition	Social Determinants of Health	Factors	Source
Policy, Systems and Environment (n = 21)	The outermost level looks at the broad societal factors contributing to the climate of engaging in health-related behavior. It also focuses on the policies and laws that help regulate and support health practices.	Policies Regulations Federal/State laws Societal norms	1. Supplemental programs 2. Benefit cliffs 3. Inequality of resources 4. Unemployment/Job opportunities/Minimum wage	1. Abrams et al., 2020 [34], Bermúdez-Millán et al., 2011 [35], Chavez et al., 2007 [42], Chilton et al., 2009 [43], Dhokarh et al., 2011 [45], Gonzalez, A. 2020 [59], Gross et al., 2019 [36], Himmelgreen et al., 2000 [33], Kamdar et al., 2019 [47], Keith-Jennings et al., 2021 [56], Lindsay et al., 2009 [37], Sharkey et al., 2013 [48], Steimle et al., 2021 [52], Ventura et al. 2022 [51] 2. Himmelgreen et al., 2000 [33], Lindsay et al., 2009 [37], Ochoa et al., 2018 [55], Nederveld et al. 2021 [39] 3. Kaiser et al., 2003 [46], Keith-Jennings et al., 2021 [56], Lindsay et al., 2009 [37], Pinceros-Leano et al., 2019 [38], Schanzenbach et al., 2020 [57] 4. Dhokarh et al., 2011 [45], Escobar et al., 2020 [58], Gross et al., 2019 [36], Himmelgreen et al., 2000 [33], McCurdy et al. 2022 [50], Schanzenbach et al., 2020 [57], Steimle et al., 2021 [52]

CURRENT STATUS OF KNOWLEDGE

A total of 27 studies met the criteria for this narrative review (see Table 1), with a retrospective cohort study published in 2000 being the earliest study included [33]. The literature included six qualitative studies [34–39], 13 cross-sectional studies [40–52], two retrospective cohort studies [33, 53], one integrative review [54], one narrative review [55], and four reports [56–59]. The target population for all the identified literature was low-income Hispanic or Latinx families or caregivers (i.e., mothers or fathers) with children under three and focused on the factors that influenced or exacerbated the household food security status. Based on the scoring system for the strength of evidence, a total of five articles [34, 35, 44, 46, 51] were classified as high quality; 13 articles [36–39, 42, 43, 47–50, 52, 53, 55] as medium quality; and five articles [33, 40, 41, 45, 54] as low quality. Four articles [56–59] did not fit the criteria to be scored for the strength of evidence as they were not systematic reviews, randomized clinical trials, observational studies, or diagnostic test studies.

Figure 2 provides a visual representation of the identified factors associated with food insecurity for this population across the different levels of SEM. Table 2 provides a detailed explanation of the different levels of SEM, its corresponding determinants, and the factors identified in the articles of the review. For instance, if nutrition knowledge was indicated as an important factor related to food security, this finding was listed and described under the individual level of the SEM. Articles could be classified at multiple levels depending on if the study addressed >1 level of the SEM. Specifically, 21 articles included at least one focusing on the individual level, 11 at the interpersonal level, four at the community level, 11 at the institutional level, and 21 at the policy, system, or environmental level.

The following summarizes the identified factors contributing to food insecurity in Hispanic/Latinx households with children under three by the different levels of SEM (i.e., individual, interpersonal, community, organizational, and policy, systems, or environment).

Individual factors contributing to food insecurity

Within the individual level of SEM, most articles (n = 10) were classified as medium in quality. These provided evidence on how income level [36, 37, 39, 42, 50, 53, 55], marital status [36], acculturation level [36, 38, 43], nutrition knowledge [36–39, 42, 47, 55], and food and feeding preferences [36, 38, 50] contribute to food insecurity in Hispanic/Latinx families with young children. Only four articles were rated high in quality and offered evidence on how education level [46], income level [35], language proficiency [34], nutrition knowledge [35, 60], and COVID-19 fear of exposure [34] contribute to food insecurity in these families. Similarly, five studies were rated low in quality providing evidence on how income level [45, 54], marital status [45], acculturation level [41, 54], nutrition knowledge [33], and food and feeding preferences [40, 41] contribute to food insecurity in this population.

Studies in this review reported that households with limited financial resources or low-income were unable to meet basic needs (i.e., rent, utilities, transportation, and medical care), with



FIGURE 2. Factors associated with food insecurity in Hispanic/Latinx households with children under the age of three by the different levels of the SEM framework.

caregivers having to prioritize expenses, limit or restrict food intake for themselves or their children, and purchase lower-quality and less quantity of healthy foods [33, 35–37, 39, 42, 43, 45, 47, 54, 57, 58, 62]. For instance, one study mentioned that the frequency and amount of economic support individuals of Hispanic/Latinx households with young children provide to family members outside the US creates additional financial constraints [62]. In addition, another study found within a scoping review found that despite experiencing precarious finances, families prioritized sending money “home” (i.e., outside of the US) because they felt their relatives were living in worse financial situations [63].

This narrative review also found other socio-demographic characteristics contributing to food insecurity among Hispanic/Latinx households with children under three. These factors included caregivers’ lower education level (i.e., obtaining less than a high school degree), lack of English language proficiency, marital status (i.e., single and/or one-parent household), and age of children (i.e., younger children require special attention and specific necessities) [34, 36, 45, 46, 62]. For instance, one study stated mothers become worried about purchasing formula for

their infants when they are unable to breastfeed, suggesting additional physical, mental, and financial stressors related to providing adequate food for their young child [35].

Moreover, findings from a qualitative study also found pregnancy and infancy increased vulnerability to food insecurity within households because of changes in employment, physical environment limitations (i.e., store proximity), and new infant-related expenses (i.e., diapers, formula, and medical expenses) [36]. Similarly to the previous study, findings also indicated that the mothers rationed certain family members’ portion sizes and restricted the amount of self-perceived “expensive foods” (i.e., fruit, vegetables) during meals to afford infant formula and other healthy food items for their infants and toddlers [35, 36].

Furthermore, the lack of fundamental nutrition knowledge and food resource management in food-insecure Hispanic/Latinx households with children under three also poses a unique challenge to acquiring, storing, and preparing nutritious foods [35, 37, 38, 41, 42, 46]. Several studies within this review reported individuals having a difficult time accessing healthy foods as a result of not knowing where to access healthy and affordable foods and the preconception that healthy items, such

as fresh produce, are considerably more expensive than foods with less nutritional value (i.e., junk food or fast food) [35, 37, 38, 41, 42, 46].

Finally, findings from this review show lower levels of acculturation also contribute to food insecurity among Hispanic/Latinx households with children under three [40, 41, 45, 54]. Acculturation is defined as “the process of cultural and psychological change that takes place as a result of contact between cultural groups and their members [64].” Research suggests that first and second-generation immigrants may have to balance the stress of keeping their cultural and ethnic identity, whereas adopting the traditions and customs of an unfamiliar cultural environment [40, 41, 45, 54]. This process makes decision-making challenging, impacting individuals’ ability to learn and practice health-related behaviors, whereas preserving cultural traditions related to food choices [65].

Interpersonal factors contributing to food insecurity

Although not as much evidence was found under the other levels of influence, most of the articles identified were rated as high or medium in quality. Within the interpersonal level of SEM, most articles ($n = 5$) were rated medium in quality. These provided evidence on how social networks [36–39, 42] and culture [38, 59] contribute to food insecurity in Hispanic/Latinx families with young children. Three articles were rated as high quality, showing how social networks contribute to food insecurity in these families. There were no articles rated as low quality within this level of influence. For instance, several studies in this review reported that social networks are an integral component of improving food security in Hispanic/Latinx underserved households with young children [34–37, 44, 45]. Social support networks, including extended family, friends, and neighbors, provided safety nets when household strategies proved insufficient to maintain food security [34, 36, 39]. As such, limited social support and feelings of isolation may negatively impact caregivers and their children’s lives [37].

Likewise, this review also identified cultural customs as a factor related to food insecurity in Hispanic/Latinx households with children under three. For instance, one study stated Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) participants reported implementing cultural practices such as “giving tea” (i.e., bottle feeding herbal tea) to their infant instead of giving them breast milk or formula as recommended by the US. Dietary Guidelines for Americans [37]. The article stated that cultural beliefs, including the perception that noncultural foods have poor nutritional value compared with culturally appropriate foods, might be a barrier to food security and health [37]. As reported by the article, caregivers struggle to access cultural foods because of low availability and high prices. They are unaware of other nutritionally adequate and age-appropriate foods, including iron-fortified formulas [37]. Similarly, two additional studies suggested that intergenerational poverty (i.e., poverty that persists from one generation to the next) contributes to food insecurity in Hispanic/Latinx underserved households with young children [35, 38]. These articles

indicated that a vicious cycle is often created as poverty creates food insecurity conditions, increasing the risk of physiological and mental issues in these families [35, 38].

Organizational factors contributing to food insecurity

Similar to the interpersonal level, only two articles qualified to be rated for strength of evidence within the organizational level of influence. These were ranked as high [34] or medium [52] quality and provided evidence of how organizational rules and procedures contribute to food insecurity in this population. Although, one article [56] provided evidence on how inter-agency collaboration contributes to food insecurity in Hispanic/Latinx families with young children, this was not rated as it did not fit the criteria utilized to rate the strength of evidence. For instance, parents of these households could not make it to regular business hours because of job scheduling conflicts [33, 59]. Likewise, shutdowns and social distancing policies resulting from COVID-19 added additional barriers limiting Hispanic/Latinx individuals living in food insecurity households from applying for or receiving food assistance benefits [37, 56].

In addition, one article found that Hispanic/Latinx households with children were hesitant to seek support in nonprofit organizations or societal institutions because of fear associated with the public charge rule (i.e., US immigrants classified as liable to become a public charge may be denied visas or permission to enter the country because of their disabilities or lack of economic resources) [34]. Finally, eligible families also reported having difficulty accessing P-EBT and other benefits because of problems with states identifying eligible children or communicating with eligible families [56]. The study reported a lack of communication among key organizations and agencies as a barrier to streamlining and improving access to benefits and services [56].

Community factors contributing to food insecurity

Within the community level of SEM, most articles were rated medium in quality ($n = 8$) providing evidence on how the food environment [36–38, 48, 53, 55], stigma [55], and social capital [39, 52] contribute to food insecurity in Hispanic/Latinx families with young children. Two articles were rated high in quality within this level and offered evidence on the food environment [44, 51] and stigma [51]. Comparably, one article [45] was rated low in quality. It provided evidence on social capital being a contributor to food insecurity in this population. Specifically, proximity to food purchasing and distribution locations (i.e., supermarkets, grocery stores, emergency food pantries, etc.), including Supplemental Nutrition Assistance Program (SNAP) and WIC-eligible stores, have important impacts on healthy food availability and child dietary intake [37, 38, 44, 48, 53]. One study stated spatial inequality of resources is a big challenge for families to access fresh fruits and vegetables [44]. Previous literature supports this finding and has also found that areas that are poorer and/or comprise predominantly racial/ethnic minorities have fewer supermarkets than predominantly White and/or affluent neighborhoods, contributing to limited access to quality food sources in such communities [67].

Social capital (i.e., community events, church, and other community gatherings) also contributes to increasing food security among Hispanic/Latinx households with children under three [36, 45]. Community members and neighbors are meaningful connections for attaining resources [36, 45]. In some instances, neighbors and community centers serve to acquire food, either through transportation to sources or by delivering food. Accordingly, access to reliable and frequent public transit has been associated with increased food security among Hispanic/Latinx under-resourced households with young children [45]. Findings from this review suggest public transportation is often nonexistent within specific communities or operates minimally, creating an obstacle to accessing food [34, 36, 42]. Lack of transportation is an obstacle for various individuals, including families with young children, in different communities, forced to walk long distances to obtain food sources or wait long hours outside in several types of weather for public transportation [68, 69].

Finally, although supplemental food assistance programs protect against food insecurity in some households, research identified for this review found that some individuals refrain from using assistance because they may feel ashamed and/or embarrassed at food retail when using their benefits [70–72]. Thus, addressing the stigma associated with nutrition assistance and enhancing food equity should be considered when creating policies and strategies addressing existing barriers and increasing support for accessing food programs and implementing change systems.

Policy, systems, or environmental factors contributing to food insecurity

Finally, within the policy, systems, and environmental level of SEM, most articles were also rated medium in quality ($n = 10$). These provide evidence on how supplemental assistance programs [35, 37, 42, 47, 48, 52], benefit cliffs [37, 39, 55], inequality of resources [37, 38], and unemployment or low job opportunities [36, 50, 52] contribute to food insecurity in these families. Only four articles were classified as high in quality and provided evidence on supplemental assistance programs [34, 35] and inequality of resources [46]. Similar to the individual level of influence, this level contained one of the higher number of articles rated as low or not applicable for rating ($n = 5$) although, the majority of evidence was still rated as high or medium quality overall. These articles provided evidence on how supplemental assistance programs [33, 45, 56, 59], benefit cliffs [33], inequality of resources [56, 57], and unemployment or low job opportunities [33, 45, 57, 58] contribute to food insecurity in Hispanic/Latinx families with young children.

Limited research has explored the association between public policy and food insecurity in Hispanic/Latinx households with children under 3, specifically regarding policies aiming to improve food assistance and food distribution systems [73]. Nonetheless, this review reveals that caregivers of Hispanic/Latinx households with children under three, who receive government aid through SNAP and WIC benefits, believe the amount allocated per household is often not enough to feed all members of their household for the entire month [34–36, 38, 42, 74]. In addition, results from these studies reported that given the limited amount of money allotted to purchase foods, families opt

to buy affordable or low-price food items that are generally higher in calories and lower in nutritional value (i.e., high-fat and sugary foods) [34–36, 38, 42, 48, 74].

Some studies from this review also reported the association between benefits cliffs and food insecurity among Hispanic/Latinx households with young children [33, 35, 42, 43, 49]. A “benefits cliff” is defined as when a person or household makes too much money to qualify for government benefits but not enough to sustain their household. The Welfare or Poverty Trap Theory, now referred to as a “benefits cliff,” argues that “poverty creates bad incentives that undermine motivations for and returns to investments that could reduce subsequent poverty.” Findings from this review align with another study that reported similar findings stating that individuals experiencing poverty or unemployment often also have limited economic incentives resulting from minimum wage and/or lack of income and have to find ways to stretch their money to meet basic needs [75]. Similarly, another study reported that even when individuals receive slightly higher earnings, they often also see a reduction in their net income because of economic inflation or other economic or social issues and cannot afford necessities without additional financial assistance [76].

A report included in this review found that Hispanic/Latinx families whose income was above SNAP’s income limits experienced difficulty affording food, stating that the requirements for eligibility had not been updated despite fluctuations in the economy [56]. Similarly, another study suggested that households that failed to renew SNAP benefits find it challenging to comply with the administrative burden associated with the process or are restricted by the demanding work obligations that limit their flexibility to keep appointments [49].

Similarly, findings from this review suggest the socioeconomic status of these households, often affected by high levels of unemployment, limited job opportunities, and eligibility requirements related to food and financial assistance, contribute to increased food insecurity levels [33, 36, 45, 57, 58]. One qualitative article mentioned a mother who described job loss as a “crisis,” explaining that unemployment often causes families to limit purchases to basic necessities [36].

Although this review did not focus on the contributing factors affecting Hispanic/Latinx households of undocumented immigrants, employment opportunities, and access to supplemental food assistance may depend on immigration status. Furthermore, studies from this review also identified that COVID-19 restrictions prevented many individuals from accessing secure and stable employment, consequently impacting their income status and contributing to food insecurity within this population [34, 52]

What is the current state of the evidence related to the contributing factors to food insecurity in Hispanic/Latinx households with children under the age of three based on the levels of the SEM?

Findings from this review reinforce evidence from previous literature suggesting that research has mainly focused on exploring the individual-level and policy-level factors contributing to food insecurity in this population [77–79]. For instance,

various individual level factors (i.e., income level, education level, marital status, language proficiency, acculturation level, nutrition knowledge, and food preferences) were identified as contributors to food insecurity in Hispanic/Latinx households with young children [33, 35–37, 39, 42, 43, 45, 47, 54, 57, 58]. Further, some individual or interpersonal level factors are unique and more common in Hispanic/Latinx families compared with non-Hispanic families, including intergenerational poverty, the practice of sending funds to family outside the USA, thereby creating additional financial constraints, lack of English proficiency, lower education level (e.g., high school or less), higher likelihood of a single parent household, cultural customs and traditions impacting food access or choice, and limited social support if separated from family.

Similarly, articles focusing on policy-level factors mainly discussed barriers regarding eligibility and participation in federal assistance programs and unemployment-related issues [34–36, 38, 42, 48, 74]. However, it is important to note that participation in federal assistance programs (policy-level factor) is likely also impacted by individual characteristics such as education level and lack of English proficiency, which is more common in Hispanic/Latinx families.

Moreover, this review supports prior research findings that report individual level factors such as limited financial resources or low-income as leading contributors to food insecurity [9, 61, 80–83]. For example, several studies within this review reported that the limited amount of money allocated for food often determines adequate access to and availability of higher quality and quantity of nutrient-dense foods (i.e., fruits, vegetables, protein foods, etc.) compared with ultra-processed foods (i.e., high in saturated and trans-fat, added sugar, and sodium) [36, 37, 42, 54, 57, 58]. Prior studies examining the association between household food insecurity and income level have reported that children living in under-resourced households consumed less nutrient-dense foods and were at a higher risk of developing diet-related health issues compared with households who were not low-income [9, 61, 80–83].

In addition, studies exploring other individual level factors contributing to the association between food insecurity and diet quality in early childhood have also reported the influence of lack of nutrition education (i.e., including food resource management knowledge and cooking skills) with a household's supply of nutrient-dense foods (i.e., fruits and vegetables) [84, 85]. Several articles within this review reported the need to develop nutrition education interventions with basic nutrition content and topics related to food shopping, budgeting, meal planning, food preparation skills, and caregiver feeding guidelines [35, 36, 39, 40, 42, 45, 47, 48]. Food resource management training was also reported as a crucial component to foster the skills these families need to save money on groceries, reduce food waste, prevent worrying about running out of food, and increase self-confidence and self-efficacy in purchasing adequate foods for all household members at an affordable price [39, 86].

When considering interpersonal factors impacting food security in Hispanic/Latinx households with young children, this review found that social networks are important to accessing consistent, reliable transportation [34–37, 44, 45]. Prior research supports this finding suggesting individuals experiencing transportation challenges often feel they are inconveniencing others when asking for a ride to grocery stores and

other food distribution locations [68, 87]. During the COVID-19 pandemic, families who relied on social networks to access transportation or childcare support could not utilize this niche as community support [34]. This new challenge added stress for caregivers in households who depended on these social networks to make ends meet for themselves and their children.

Although, one study found intergenerational poverty as a contributing interpersonal factor to food insecurity unique to underrepresented minorities, including Hispanic/Latinx households with children under three [35, 38], previous studies exploring the effects of intergenerational poverty suggest food insecurity can be grounded in other prior experiences across the life course and learning [88, 89]. Social and economic deprivation during childhood and adolescence can have a lasting effect on individuals, making it difficult for children who grow up in low-income families to escape poverty when they become adults. Interventions are needed to create community connections and health promotion opportunities to address the social, economic, and health risk factors associated with food insecurity. This is important while increasing knowledge, access, and consumption of healthy foods in families with young children [90].

Although the articles selected for this review frequently focused on the individual or policy-level factors associated with food security, other factors also significantly contribute to food insecurity in Hispanic/Latinx households with children under three. Findings from this review suggest that community-based organizations should work together more frequently to connect families to services and improve access to healthy and affordable foods [91, 92]. Instead, of competing initiatives, community organizations should strive to improve interagency communication and collaboration, rallying leaders around the common goal of reducing hunger and food insecurity within this population [91, 92]. In addition, organizations must deliver culturally and linguistically responsive services and resources to reduce existing gaps to build healthy and resilient communities [38, 44].

Previous research assessing low-income families has also found that the proximity of food or grocery stores is essential for purchasing food items for the household [93]. Therefore, if a neighborhood lacks stores with a vast supply of healthful food items and/or does not have eligible stores that accept WIC or SNAP benefits, household members are limited in the number of food-purchasing locations where affordable and healthy foods may be available to them. This is especially important for families with young children who may need infant formula or other age-appropriate foods. Many residents, therefore, rely on small corner stores and bodegas for most food purchases in neighborhoods that lack access to grocery stores [94, 95]. Unfortunately, these options often sell predominantly ultra-processed, nutrient-poor foods and little or no fresh produce [95, 96]. The spatial context, such as an individual's environment, may help shape how a household copes with food insecurity, whether through altering shopping behavior, finding additional work opportunities, or seeking assistance [97]. Thus, strategies to expand healthy food offerings in under-resourced communities are needed to improve food security among Hispanic/Latinx households with children under three.

Overall, although the findings from this review examined several studies targeting Hispanic/Latinx households with children under three, prior research related to determinants of food insecurity has also focused on school-aged children and

adolescents [8, 23]. Likewise, studies exploring the association between food insecurity and underrepresented racial and ethnic groups are limited and have focused on exploring factors associated with food insecurity within a specific or combination of racial and ethnic groups (i.e., African Americans, Asians, and Hispanics) [67, 98, 99]. This is relevant given several studies within this review found that low acculturation plays an important role in accessing healthy foods [40, 41, 45, 54]. Previous research suggests low acculturation in adults has been associated with lower language proficiency, socioeconomic status, and level of education, creating additional knowledge and communication barriers for individuals to access governmental and charitable assistance [67, 100, 101].

Research gaps and future directions

Future research should further explore the identified factors unique to Hispanic/Latinx households with children under three that contribute to food insecurity. These factors include examples such as intergenerational poverty, lower education level, lack of English proficiency, household composition, cultural traditions, social support, self-perceived stigma, or hesitancy in accepting government benefits, and administrative burden of applying for benefits.

In addition, culturally sensitive and linguistically appropriate nutrition education and food assistance resources and services are needed for Hispanic/Latinx families with young children. As previously mentioned, acculturation and language barriers have been associated with food insecurity. Although some existing resources and services are translated into other languages, including Spanish, there is a need to improve and expand access to and availability of culturally sensitive and linguistically appropriate information [59]. Previous research has found that improved cultural competence and sensitivity also increase the level of connectedness and trust within the community [38, 44]. Thus, developing culturally responsive approaches that promote financial management, reduce the stigma associated with participation in nutrition assistance programs, and assist families in applying for food assistance should be considered an essential step toward improving food and nutrition security in this population.

Furthermore, novel, and adapted strategies should consider the unique needs and characteristics of Hispanic/Latinx population subgroups based on country of origin or geographic location. Based on the findings from the articles selected for this review, groups from different countries of origin (i.e., Mexico, Puerto Rico, etc.) expressed different needs and barriers to food insecurity [35, 38, 42, 45, 74]. Previous research has found that tailoring interventions to the unique characteristics and needs of target groups within the population also contributes to the positive integration of community members and improved diet-related behaviors [38, 44, 102–104].

Future state and federal economic policies should also evaluate long-term eligibility means-tested benefit programs, particularly food assistance programs, to reduce poverty and mitigate food insecurity in this population. Although low-income Hispanic/Latinx families believe food assistance programs are essential for mitigating the effects of food insecurity, these programs are not always available or utilized because of the associated stigma,

current policy restrictions, and eligibility limitations (i.e., immigration status, benefits cliffs, income limits, etc.). Although the majority of articles reviewed contained medium or high-quality evidence, even when examining them by SEM level, future research should focus on exploring the policy, systems, and environmental factors contributing to food security in this population given the potential larger scale impact and that some of the studies focused on this level of the SEM were ranked low with regards of strength of evidence, or were reports found in gray literature.

Finally, research should explore the interplay among factors impacting food security across multiple levels of influence (i.e., policy, community, organizational, interpersonal, and individual) rather than only one influence level. Exploring the determinants at multiple levels of influence can help inform and improve existing practices and policy-based strategies addressing access to age-appropriate and nutritionally adequate foods for all members of the households, specifically for children under three, and promoting health equity [73, 77, 105]. For instance, future research could evaluate how culturally and linguistically appropriate nutrition and food resource management education, interagency community collaborations to connect families to all eligible resources and services, and policy change to reduce the burden to apply for benefits and increase benefit amount, impacts household food security in Hispanic/Latinx families with young children.

Limitations

Although this narrative review highlights the need to strengthen the current body of literature on food insecurity among Hispanic/Latinx underserved households with children under three, some of the studies selected for this review lack consistency in evaluation tools to measure food insecurity, including different modes of analysis (i.e., quantitative vs. qualitative) and target specific groups within the Hispanic/Latinx community which hinders generalization of results. For instance, this review was limited to US states where research excluded risk factors associated with food insecurity among migrant workers and undocumented immigrants living in Hispanic/Latinx households. Further, because this was a narrative review with a specific review process, a second reviewer was not included in the process, potentially introducing bias. Finally, although this narrative review rated the strength of the evidence of each article, additional elements should be included in the grading system, including the quantity and consistency of the evidence provided in the selected studies [32].

In conclusion, although the associations between food security and early childhood have been previously studied, additional research and policy considerations are still needed to understand the barriers and opportunities that affect minority populations, specifically Hispanic/Latinx households with children under three. Using the SEM as a framework, this review revealed that most of the articles included factors at the individual (i.e., education level, income level, socioeconomic status, acculturation level, nutrition knowledge/skills, etc.) or factors at the policy, systems or environmental levels (i.e., supplemental nutrition programs, benefits cliffs, etc.) of the SEM with the less research at the community level or containing all SEM levels.

Further, more than half of the articles in the review were rated at the “medium” level of evidence indicating that more research and rigor may be needed.

Recommendations include developing or adapting culturally and linguistically appropriate interventions for Hispanic/Latinx families with young children at multiple levels of the SEM to improve food security. This will require commitment from key stakeholders, thought leaders, and collaborations across communities, organizations, sectors, and public policy.

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Appendix A. Supplementary data

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