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Advancing Equity, Diversity, and Inclusion in United States Nutrition Programs: A Scoping Review

Final Report

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The Gretchen Swanson Center for Nutrition

Founded in 1973, the Gretchen Swanson Center for Nutrition is a national nonprofit research institute providing expertise in measurement and evaluation to help develop, enhance and expand programs focused on healthy eating and active living, improving food security and healthy food access, promoting local food systems and applying a health equity lens across all initiatives. The Gretchen Swanson Center works nationally and internationally, partnering with other nonprofits, academia, government and private foundations to conduct research, evaluation and scientific strategic planning.

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No child should go hungry in America. But millions of kids in the United States live with hunger. No Kid Hungry is working to end childhood hunger by helping launch and improve programs that give all kids the healthy food they need to thrive. This is a problem we know how to solve. No Kid Hungry is a campaign of Share Our Strength, an organization committed to ending hunger and poverty.

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Executive Summary

Introduction

A common goal of nutrition programs housed at federal, state, and local organizations across the United States (U.S.) is to support food and nutrition security among participants. Food and nutrition security ensures reliable access to food that is affordable, nutritious, and culturally preferred. Yet, data demonstrates that food insecurity and diet-related chronic disease risk is higher among specific sociodemographic groups that experience disparities, with regard to race, ethnicity, socioeconomic status, gender, sexual orientation, and disability, for example. Calls to action have been made to address equity, diversity, inclusion (EDI) and intersectionality (i.e., intersecting stigma regarding social position) within U.S. nutrition programming.

The Gretchen Swanson Center for Nutrition (GSCN) and Share Our Strength (SOS) worked together to answer the research question, "What strategies to advance EDI have been implemented within the context of nutrition programming in the U.S. and how have these approaches to EDI sought to address intersectional stigma?".

Methods

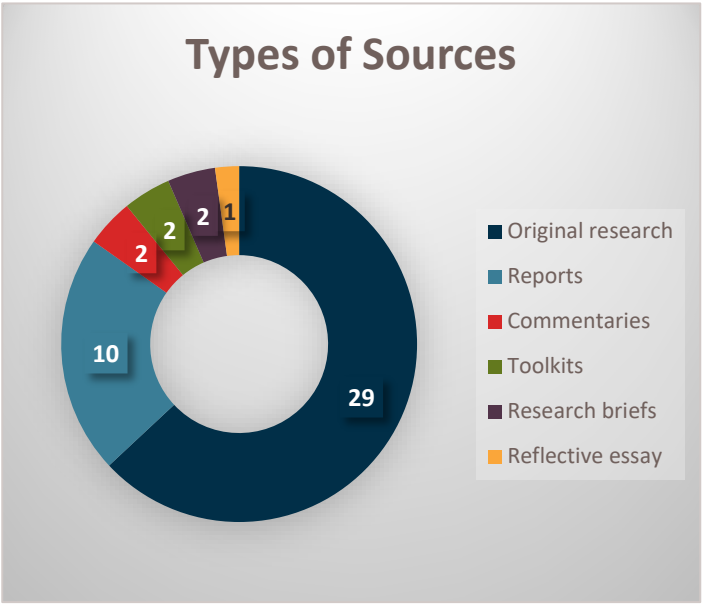
A scoping review was conducted to understand what strategies federal, state, or local nutrition programs have implemented to address EDI. Sources meeting inclusion needed to:

- Be published in the English-language;
- Be published during or after the year 1990; and,
- Detail an intentional EDI strategy or strategies that have been applied within U.S. nutrition programs.

Results

Of the 46 sources included as review evidence, 24 concentrated on federal programs, 20 on community or local programs, and two presented EDI strategies applicable to both federal and local programs.

Strategies were oriented towards various priority populations, with several focused on federal food assistance staff members in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and the Supplemental Nutrition Assistance Program (SNAP).



Principles to address intersectional stigma regarding the approach to EDI strategies were found in 39 sources. These included:

- Seven (15%) sources recognized and named how systems of power, privilege, and oppression intersect to impact individual experiences and fuel stigma.
- Sixteen (35%) sources aimed to dismantle systems of power, privilege, and oppression, and mitigate the harms caused by those systems.
- Twenty-two (48%) sources ensured community leadership and meaningful engagement.
- Sixteen (35%) sources supported collective action, cohesion, and resistance to address the intersecting axes of inequities.

The EDI strategies found in the literature were grouped by similarity using eight categories.

Designing and adapting programs to advance EDI and food justice or anti-racism trainings were categories with the greatest number of strategies.

Organizational change strategies to advance EDI and nutrition-associated policy strategies were categories with the least number of strategies.

Program Design or Adaptation

- **18 sources** created or adapted programs to better reflect the needs of priority populations, for more relevant and inclusive programs.

Food Justice/Anti-Racism Trainings

- **11 sources** included trainings for food justice or anti-racism with staff or community members.

Access to Federal Nutrition Program Services

- **8 sources** focused on improving the accessibility of federal programs to improve reach beyond standard practices.

Hire or Develop Staff to Better Serve Priority Populations

- **6 sources** described workforce development efforts to advance EDI pertaining to WIC, SNAP, and food banks.

Nutrition Program Partnerships

- **5 sources** expanded program partnerships to better meet the needs of priority populations.

Food Accessibility

- **5 sources** focused on improving the availability, affordability, convenience, promotion, or quality of healthy and culturally preferred foods.

Nutrition-Associated Policy Strategies

- **4 sources** focused on policies to improve nutrition-specific or nutrition-sensitive programs to mitigate food and nutrition disparities.

Organizational Change Strategies

- **3 sources** changed organizational procedures, policies, or practices to better meet the needs of priority populations.

These findings provide direction about EDI strategies implemented among U.S. nutrition programs, including how these approaches were designed to address intersectional stigma. When planning for and implementing the EDI strategies within nutrition programming in the future, the following overarching recommendations, driven from review evidence, are important to consider.

Key Policy Recommendations

- Increase federal, state, organizational, and local funding to support nutrition program EDI strategy development, implementation, and evaluation. For example, most of the captured EDI strategies were implemented within the context of WIC due to a special funding call, which demonstrates the importance of financial resources to drive this work forward. This includes improving financial resources for national technical assistance organizations to support this work, given many EDI strategy applications noted resource and capacity challenges.
- Policies that will address and acknowledge systematic structural racism and biases that impact health inequalities are needed. For example, although many EDI strategies were found promising regarding meeting stated goals, they may have limited impact given structural barriers and needed systems changes, that will take more time and sustained efforts beyond discrete EDI strategies.

Key Practice Recommendations

- Practitioners who work to address EDI in U.S. nutrition programs are encouraged to use the EDI categories and strategies identified by this review as examples for moving forward. It is recommended that EDI strategy selection, design, implementation, evaluation, and public dissemination are carried out following the recommended principles to address intersectional stigma[1] and that the priority population is adequately characterized (regarding intersecting identities that result in overlapping systems of oppression). This will help to move forward the state of the evidence and demonstrate EDI strategies that should be implemented as standard federal/local nutrition program components.
- Technical assistance or related organizations who primarily work to support nutrition program practitioners should develop strategies to assist with workforce development, capacity building, and resources, given common challenges to implementing EDI strategies among nutrition programs noted in the literature.
- Practitioners should work to increase the opportunities for people from marginalized groups with intersecting identities to lead these initiatives, across federal and local nutrition programs, of which there are existing relationships (i.e., advocating for or assisting other organizations in the application of recommended principles to address intersectional stigma).
- Practitioners should work to increase available educational workshops, trainings, and resources that

acknowledge how systems of power, privilege, and oppression intersect and perpetuate inequalities within our society. For example, using anti-racism and EDI training concepts as highlighted in this review within and between organizations working to advance EDI in nutrition programs.

Key Research and Evaluation Recommendations

- Refine EDI strategies that support food and nutrition security among priority populations using literature reviews focused on a specific nutrition program and identified priority populations' attitudes, beliefs, and experiences related to said programming. Doing so may help to build evidence on additional types of EDI strategies that may be warranted, in addition to the examples identified in this review.
- Use robust mixed method approaches (quantitative and qualitative research methods) to illuminate the needs of priority populations and the impact of EDI strategies on food and nutrition security.[2]
- Support research and practice approaches that use theory, models, and frameworks and principles to address intersectional stigma in the design, implementation, and evaluation, and dissemination of EDI strategies, given this is lacking in the current evidence base. This may vary depending on the priority population and research-practice partnerships (e.g., traditional ecological knowledge, Getting to Equity, Just Transition).
- Robust evaluation is needed to identify which EDI strategies, beyond standard nutrition program design, are ideal for which populations and under which conditions to build the evidence base and optimize EDI strategies. This includes the selection of appropriate outcomes that factor in multi-level and longer-term changes and the use of gold-standard measures.
- Investigate the implementation of EDI strategies in several federal nutrition programs further. For example, not all 16 federal nutrition programs were represented in the EDI strategy literature, and it is unknown to what extent these strategies can work to advance EDI across different program contexts.
- Employ dissemination strategies that capture local, grassroots learnings from EDI strategy design and implementation to inform the research, practice, and policy agendas.

Introduction

As emphasized in the Biden-Harris Administration's 2022 White House Conference on Hunger, Nutrition, and Health,[3] achieving food and nutrition security among all Americans is a primary focus of federal, local, and state organizations. The concept of nutrition security builds on a decades long approach to document and alleviate food insecurity in the United States (U.S.). Food insecurity is inadequate access to a safe and nutritious food supply in the U.S.[4] Nutrition security emphasizes the accessibility of foods and beverages necessary to prevent or manage diet-related chronic disease.[5,6] The U.S. Department of Agriculture (USDA) Food and Nutrition Service[7] administers 16 federal nutrition assistance programs aimed at supporting Americans with lower income and populations made vulnerable by inequities and recently outlined actions necessary to meet nutrition security goals.[5,7] Important pillars recommended to guide this work included meaningful nutrition support across the lifespan, improvements to the accessibility of healthy food in local communities, cross-sector partnerships to improve food policies, systems, and environments, and dismantling systematic inequities that drive diet-related chronic diseases.[5] While federal and local programs can help to improve food security and dietary quality in the U.S.,[8,9] inequities remain.

The concept and measurement of nutrition security is rather new,[6,10] although food insecurity is measured and reported annually by the USDA.[11,12] This data has consistently revealed food security disparities among populations by social and demographic characteristics. For example, in 2022, 12.8% of U.S. households were considered food insecure.[11] Yet, rates of food insecurity for some groups were greater than the national average in 2022: Hispanic (20.8%); Black, non-Hispanic (22.4%); households with children (17.3%); households with children under six years of age (16.7%); single female head households with children (33.1%); single male head households with children (21.2%); women (15.1%) and men (13.8 %) living alone; and households with incomes below 185% of the poverty threshold (32.0%).[11] Households in nonmetropolitan areas or rural locations experienced greater food insecurity (14.7%) as compared to households in metropolitan areas outside principal cities (10.5%); however, urban principal cities in metropolitan areas had the highest rates of food insecurity (15.3%).[11] Further, the 2021 U.S. Census Bureau's Household Pulse Survey showed that 13.1% of lesbian, gay, bisexual, and transgender adults lived in a household that experienced food insecurity.[13] In 2018, 33% of households with a member not in the labor force due to living with a disability were food insecure.[14] These gaps are the result of heightened barriers and systematic inequities among populations that have been socially and economically disadvantaged[15,16] and require equity, diversity, and inclusion (EDI) strategies.[17]

For example, while the 16 USDA federal nutrition programs[7], combined with state and local efforts,[18] have been successful in helping to minimize food and nutrition insecurity gaps over time,[19,20] there is still work to be done.[21] Table 1 provides examples of barriers to (i.e., that may create disparities) or documented disparities in program delivery, access, and outcomes among USDA nutrition programs. In addition to Table 1 evidence, societal stigma is a problem across U.S. food assistance programs, reducing access for many populations.[22] Case in point, of the two largest federal nutrition programs, around 50% of eligible participants with low income are enrolled in the Special Supplemental Nutrition Program for Women, Infants, and Children

(WIC)[23], which supports pregnant, postpartum, and breastfeeding women, infants, and children up to the age of five by providing nutritious foods.[24] About 78% of eligible participants with low income are enrolled in the Supplemental Nutrition Assistance Program (SNAP)[25] that provides supplemental income for food purchases.[7] SNAP also has less coverage in rural compared to urban areas for online shopping initiatives and reaches less transgender compared to cisgender populations.[26] Last, the Dietary Guidelines for Americans,[27] which is used, in part, to guide nutrition recommendations for federal nutrition programs, have been critiqued for not well representing the dietary needs and experiences of non-White Americans.[28]

These examples, coupled with evidence highlights in Table 1 provide targets for addressing EDI among federal nutrition programs. For example, a practical approach to building equity within WIC has focused on expanding approved foods to include culturally preferred foods that have been historically excluded (e.g., tofu and corn tortillas).[17,29] Child nutrition programs can reduce disparities by expanding access regardless of geographic location, language, schedules, and cultural food needs.[30,31] As one example, offering milk as a main source of vitamin D can exacerbate disparities among African American and Indigenous children who are more likely to be lactose intolerant and vitamin D deficient.[17] Further, advocating for and informing expansion of community eligibility provision policies to expand the reach of free and reduced cost school meals is another potentially high impact opportunity.[32] Even with clear examples of disparities that exist across nutrition programming, and examples of how persisting inequities may be addressed, a review of EDI strategies that have been applied in U.S. nutrition programs is lacking.

For example, published reviews have demonstrated that priority population views of nutrition programming can help inform efforts more likely to achieve EDI,[33] especially in combination with efforts to dismantle inequitable and racist policies, systems, and environments that influence food and nutrition security.[34,35] Singleton et al. (2023) reviewed food access literature and identified structural racism as a negative influence on community access to food retailers (e.g., where many federal nutrition program benefits are used) and a noted a need for more consistent application of structural racism measures/approaches in the field.[16] At the same time, EDI strategies must address intersectional stigma.[1,15] Intersectionality is a concept born from Black feminism[36,37] movements that illuminates the multiple stigmas or burdens related to factors such as race, ethnicity, class, gender, sexuality, age, or ability (i.e., "social location" across time and space[38]) that lead to social exclusion and inequities.[36–38] There is also a gap in knowledge regarding how intersectionality influences food and nutrition security.[39]

Despite this helpful literature base that highlights persisting gaps related to EDI, a review of EDI strategies that have been used among U.S. nutrition programs has not been completed. Therefore, the aim of this report is to detail a scoping review carried out to understand strategies that have been used to advance EDI among U.S. nutrition programs and to what extent these EDI strategies sought to address intersectional stigma.[1]

Table 1. Key Examples to Illustrate Disparities Across Federal Nutrition Assistance Programs in the United States (U.S.).*

Federal Food and Nutrition Programs	Examples of Known Program Barriers and Access or Outcome Disparities
Child and Adult Care Food Program (CACFP)	• Less than 40% of eligible childcare settings in the U.S., and around 57% in areas with low income, participated in CACFP in 2019-2020.[31] The high cost of operations, paperwork, staffing shortage, and the time commitment to administering a meal program may prevent implementation and negatively impact those who would benefit from its services.[40] • Limited access to sponsors, specifically in rural areas impacts the accessibility of the program to these communities, as providers need sponsors to be eligible to participate in the program.[41] • Urban areas are more likely than rural areas to receive higher reimbursement levels for CACFP potentially preventing rural community members who receive CACFP from benefitting in the same way that urban areas experience .[42]
Commodity Supplemental Food Program (CSFP)	• Difficult application processes, along with limited transportation to distribution sites, sickness/chronic illness, and limited hours at distribution sites impact CSFP's reach to community members and ability to reduce disparities in priority populations.[43] • Daunting application process includes complicated and costly trips to the public assistance office that often deter senior citizens (particularly those in rural areas) from enrolling and benefiting from the program.[44] • CSFP is not offered in all geographic areas, creating barriers that impact interested low-income seniors from participating in these areas.[45]
Farmers Market Nutrition Programs (FMNP) (e.g., Senior Farmers Market Nutrition Program (SFMNP) and Special Supplemental Program for Women, Infants, and Children (WIC) FMNP)	• Location and limited access to get to the farmers' market makes it harder for African American families to purchase foods from farmers using WIC benefits.[46] • Market participants often did not know Electronic Benefits Transfer (EBT) cards are an accepted form of payment at the markets, limiting Supplemental Nutrition Assistance Program (SNAP) and WIC participants' use of EBT cards to purchase fruits and vegetables.[47] • [SFMNP] Transportation, inconvenient market hours, and stigma associated with participating in the program are barriers to program participation, especially for older adults with accessibility or mobility barriers.[48]

Federal Food and Nutrition Programs	Examples of Known Program Barriers and Access or Outcome Disparities
Food Banks, Food Pantries, and The Emergency Food Assistance Program (TEFAP)	• Not all foods supplied within the food bank system provide optimal nutrition or are culturally preferred.[49,50] • Hours of operation and documentation requirements impact cancer patients' ability to use food pantry services.[51] • Barriers such as stigma, lack of knowledge about pantry use policies, and inconvenient hours impact college students' ability to use food pantry services to reduce disparities.[52]
Food Distribution Program on Indian Reservations (FDPIR)	• FDPIR monthly food packages do not meet the Dietary Guidelines for Americans, potentially impacting disparities in type 2 diabetes and other chronic health outcomes in American Indian or Alaskan Native communities.[53] • Transportation barriers such as cost of gas and access to a vehicle to get to FDPIR sites can cause disparities in access within the community it aims to support.[54]
Child Nutrition Programs (CNP): National School Lunch Program (NSLP), School Breakfast Program (SBP), Fresh Fruit and Vegetable Program (FFVP), Special Milk Program (SMP), Summer Food Service Program (SFSP), Seamless Summer Option (SSO), Summer EBT Pilot, Team Nutrition, The Patrick Leahy Farm to School Program, United States Department of Agriculture (USDA) Foods in Schools	• Vitamin D deficiency is a micronutrient disparity among children of color. CNP programs often offer milk as the main reliable source of vitamin D provided in school under the USDA nutrition standards. With African American and Indigenous children being more likely to be lactose intolerant, CNP programs are not meeting the needs of all children to reduce disparities in vitamin D.[17] • The amount of funding a school has impacts how supported child nutrition programs are. With schools receiving most of their funding support from property taxes, low-income areas often are not well funding compared to high-income areas, increasing disparities in CNPs in schools.[17] • Summer meal sites are less common in areas of concentrated poverty, impacting children of color who are food insecure. They are less common in these areas due to barriers such as startup fee and SFSP registration costs.[17] • [NSLP] Garden programs which aim to increase access to healthy foods, are less common in schools where more students are eligible for free or reduced-price meals (lower-socioeconomic schools), lowering the amount of opportunities students in these schools have to fruit and vegetables compared to higher income school districts.[55]
WIC	• WIC approved food often excludes culturally preferred foods such as quinoa, brown rice, or brown basmati rice, providing less support for community members with these food preferences.[17]

Federal Food and Nutrition Programs	Examples of Known Program Barriers and Access or Outcome Disparities
	• WIC authorization rules make it difficult for small food stores to keep up with stocking, creating barriers to getting WIC authorization and reducing access to WIC accepted resources in areas that rely on small food stores.[56]
SNAP	• SNAP benefit amount does not differ for those living on or near reservations, even though food prices are typically quite high, due primarily to the cost of transporting food to rural areas.[17] • Although households headed by immigrant mothers are less likely to participate in SNAP due to language barriers and anti-immigrant rhetoric that can discourage eligible immigrants from participating.[57] • Rural areas had disproportionally less coverage than urban areas for online shopping initiatives created by SNAP.[26] • Approximately 25% of farmers markets accept SNAP benefits, impacting access to fresh fruits and vegetables for SNAP recipients.[58]

Note: U.S., United States; CACFP, Child and Adult Care Food Program; CSFP, Commodity Supplemental Food Program; FMNP, Farmers Market Nutrition Program; SFMNP, Senior Farmers' Market Nutrition Program; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children; EBT, electronic benefits transfer; TEFAP, The Emergency Food Assistance Program; FDPIR, Food Distribution Program on Indian Reservations; CNP, Child Nutrition Programs; NSLP, National School Lunch Program; SBP, School Breakfast Program; FFVP, Fresh Fruit and Vegetable Program; SMP, School Milk Program; SFSP, Summer Food Service Program; SSO, Seamless Summer Option; USDA, United States Department of Agriculture; SNAP, Supplemental Nutrition Assistance Program.

*Examples highlighted in this table provide insight into the EDI strategies that may be beneficial for improving program reach and impact across priority populations.

Objective

The research question that guided this scoping review was, "*What strategies to advance EDI have been implemented within the context of nutrition programming in the U.S. and how have these approaches to EDI sought to address intersectional stigma?*". The goal of answering this research question was to understand how federal, state, or local nutrition programs could be leveraged to meet food and nutrition security goals that hinge on realizing EDI.

Methods

The Joanna Briggs Institute methodology for scoping reviews was used to develop the review methods[59] and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) was used to guide reporting.[60] The review team included research, evaluation, and practice experts between two national organizations with diverse lived experiences and in-depth knowledge of nutrition inequities and nutrition programming. A research librarian was engaged by the review team to help develop the review search strategy. A protocol was pre-registered on Open Science Framework prior to scoping review initation.[61]

The Joanna Briggs Institute Population–Concept–Context (PCC) Framework was used to guide the review scope.[59] For example, the population of interest included nutrition program practitioners or participants. The review concept centered around strategies that have been *used* (i.e., tested, applied, or implemented) to advance EDI. Last, the review context was U.S. nutrition programming, broadly defined to include federal, state, or local programs or policy decisions directly or

List of acronyms used in this report:
AHEAD: Advancing Health Equity to Achieve Diversity and Inclusion
BIPOC: Black, Indigenous, and People of Color
BMI: Body Mass Index
CACFP: Child and Adult Care Food Program
CBPR: Community-based Participatory Research
CDC: Centers for Disease Control and Prevention
CDC REACH: Centers for Disease Control and Prevention Racial and Ethnic Approaches to Community Health
CDC DNPAO: Centers for Disease Control and Prevention, Division of Nutrition, Physical Activity, and Obesity
CNP: Child Nutrition Programs
CSA: Community Supported Agriculture
CSFP: Commodity Supplemental Food Program
CTC: Child Tax Credit
EBT: Electronic Benefits Transfer
ECE: Early childhood education
EDI: equity, diversity, and inclusion
EFNEP: Expanded Food and Nutrition Education Program
EITC: Earned Income Tax Credit
FDPIR: Food Distribution Program on Indian Reservations
FFVP: Fresh Fruit and Vegetable Program
FMNP: Farmers' Market Nutrition Program
FV: fruits and vegetables
GA: General Assistance
GWCC: Group Well-Child Care
GSCN: The Gretchen Swanson Center for Nutrition
GusNIP: Gus Schumacher Nutrition Incentive Program
HEI: Healthy Eating Index
LGBTQ+: lesbian, gay, bisexual, transgender, queer
NHLBI: National Heart, Lung, and Blood Institute
NIMHD: National Institute on Minority Health and Health Disparities
NOPREN: Nutrition and Obesity Policy Research and Evaluation Network

indirectly related to food or nutrition security outcomes. For example, the Earned Income Tax Credit (EITC) provides supplemental income to eligible families using a federal tax refund mechanism[62] and, given the association between household finances and food and nutrition security,[63] similar nutrition-sensitive programs or policy decisions were of interest. The research librarian operationalized the PCC Framework to design the key terms and search strategy (described more below).

Continued list of acronyms used in this report:
NSLP: National School Lunch Program
NTAE: National Training, Technical Assistance, Evaluation, and Information Center
NYC: New York City
PCC Framework: Population, Concept, Context Framework
P-EBT: Pandemic-Electronic Benefits Transfer
PRISMA-ScR: Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews
RWJF: Robert Wood Johnson Foundation
SBP: School Breakfast Program
SCHIP: State Children's Health Insurance Program
SDOH: Social Determinants of Health
SFMNP: Senior Farmers' Market Nutrition Program
SFSP: Summer Food Service Program
SMP: Special Milk Program
SNAP: Supplemental Nutrition Assistance Program
SNAP-Ed: Supplemental Nutrition Assistance Program - Education
SOS: Share Our Strength
SSDI: Social Security Disability Insurance
SSI: Supplemental Security Income
SSO: Seamless Summer Option
TANF: Temporary Assistance for Needy Families
TEFAP: The Emergency Food Assistance Program
U.S.: United States
USDA: United States Department of Agriculture
VA: Veteran's Assistance
WIC: Special Supplemental Nutrition Program for Women, Infants, and Children

Example Nutrition Programs:
Centers for Disease Control and Prevention (CDC) High Obesity Program
CDC Racial and Ethnic Approaches to Community Health Program (CDC REACH)
CDC State Physical Activity and Nutrition Program
Child and Adult Food Care Program (CACFP)
Commodity Supplemental Food Program (CSFP)
The Emergency Food Assistance Program (TEFAP)
Expanded Food and Nutrition Education Program (EFNEP)
Farm to School Program
Farmers Market Nutrition Program (FMNP)
Food Distribution Program on Indian Reservations (FDPIR)
Fresh Fruit and Vegetable Program (FFVP)
National School Lunch Program (NSLP)
Nutrition Incentive Programs
Pandemic EBT (P-EBT)
Produce Prescription Programs
Seamless Summer Option (SSO)
School Breakfast Program (SBP)
Seniors Farmers' Market Nutrition Program (SFMNP)
Special Milk Program (SMP)
Summer Food Service Program (SFSP)
Supplemental Nutrition Assistance Program (SNAP)
Supplemental Nutrition Assistance Program-Education (SNAP-Ed)
Temporary Assistance for Needy Families (TANF)
Team Nutrition
USDA Foods in Schools
Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)

Example Safety Net Programs:
Child Care Subsidy Program
Child Tax Credit (CTC)
Earned Income Tax Credit (EITC)
General Assistance (GA)
Medicare
Social Security Disability Insurance (SSDI)
State Children's Health Insurance Program (SCHIP/Medicaid)
Supplemental Security Income (SSI)
Veterans Assistance (VA)

Eligibility Criteria

For a source to be included as scoping review evidence, it needed to adhere to the PPC Framework categories noted above (and described more below). Further, sources were required to be published in the English-language and published during or after the year 1990. This time period marked a year of rapid growth in health equity-focused research, which may indicate more action to mitigate health disparities documented since the 1800s (i.e., implemented EDI strategies).[64] The review focuses on nutrition "programs" (or policy decisions about programs), excluding broader food justice or food sovereignty work (e.g., food systems

changes) that could not be tied to a specific program or intervention. Further, given the focus on *implemented* EDI strategies, sources that only highlighted results pertaining to attitudes, beliefs, perceptions, or recommendations to advance EDI were not eligible for inclusion. Sources also needed to detail an *intentional* EDI strategy or strategies. Many federal nutrition programs or policy decisions seek to address inequities by design[7,17]; however, given noted gaps (Table 1) and inequities in food and nutrition security,[11–17,22,65] an understanding of EDI strategies that have been applied beyond standard programming was of interest. For example, sources that described nutrition interventions using community-engaged methods occurring in communities made vulnerable by systematic racism and inequities would not be considered an intentional EDI strategy, unless specifically designed or used to achieve some aspect of EDI. Last, the concept of EDI is overlapping and dynamic and there is no standard definition for EDI specific to U.S. nutrition programs. Sources were not compared to available EDI definitions to determine eligibility for review inclusion; rather review leads used expert knowledge surrounding the concept of EDI in nutrition combined with source author's framing of their work to determine inclusion. Figure 1 shows example definitions of EDI that have been used to guide similar work.[66,67] There were no other exclusion criteria based on priority population or source type (e.g., original research, reports, grey literature).

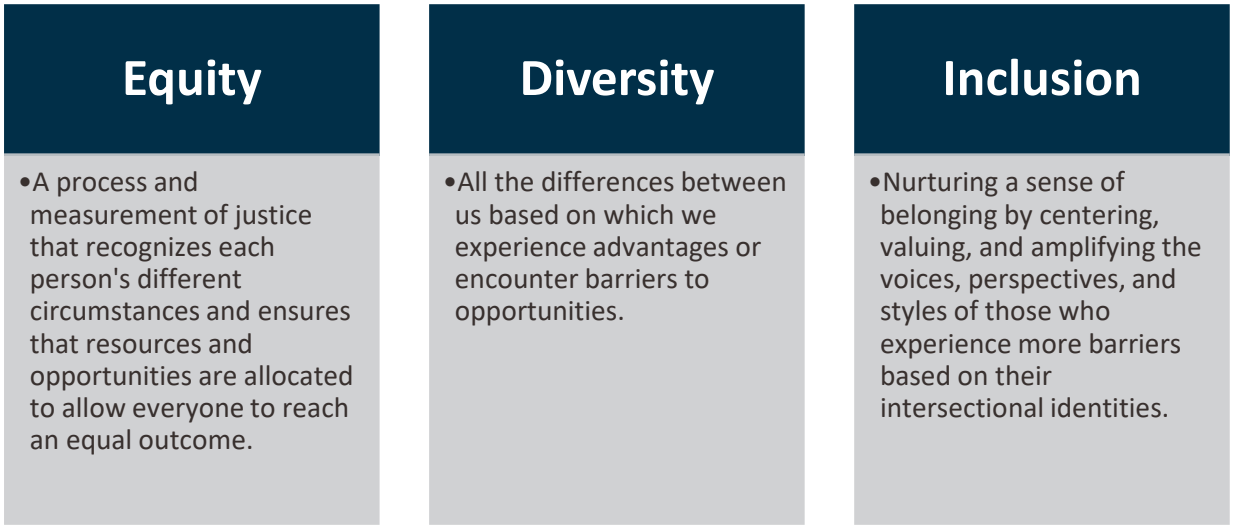


Figure 1: Example definitions for equity, diversity, and inclusion.[66,67]

Information Sources and Search Strategy

The review search strategy (Appendix A) was designed to locate peer-reviewed and grey literature sources by a research librarian (RM) following the PCC Framework[59] and in collaboration with the review team. Five databases–Academic Search Complete, Agricola, CABDirect, PubMed, and SocINDEX –were selected to locate peer-reviewed literature meeting the inclusion criteria. Academic Search Complete was chosen as an in-depth, multidisciplinary resource, covering data from 1887 to present. Agricola (coverage from 1530 to present) and CAB Abstracts were chosen for their strengths in the agriculture field, where much of the nutrition programming literature is published and has coverage from 1973 to the present. PubMed was chosen as it is the preferred medical research and literature database and has

coverage dating back to 1946. SocINDEX was selected to capture sociological aspects of this topic that may fall outside of the scope of agriculture and medical databases, covering 1895 to present. In addition to these databases, The Directory of Open Access Journals was chosen for its inclusion of easily accessible materials.

The librarian (RLM), met with the group and reviewed example research papers selected by the researchers to meet review inclusion at the beginning of the research process. RLM examined the keywords used within the papers, as well as searched for the journals within UlrichsWeb Global Serials Directory, to see which databases those journals would be indexed within. As part of the initial consultation, RLM spoke with the review team about the words they felt would be most helpful to the search process. Key words focused on words surrounding diversity, marginalized communities, systemic bias, and nutritional barriers as well as nutrition programs and federal nutrition programs within the United States. Additionally, RLM focused these terms on abstract searches to ensure that the terms would be the primary focus of the article and not just mentioned in passing. The librarian had a follow-up meeting with the researchers where the search was reviewed and revised. After clarification and group meetings, RLM finalized the search as it now stands (Appendix A).

Grey literature searches were also carried out to capture work that is documented outside of the peer-reviewed literature. These searches primarily focused on websites where relevant information or reports are found, including: Centers for Disease Control and Prevention (CDC) Racial and Ethnic Approaches to Community Health (REACH); Healthy Eating Research; MedNar; Nutrition and Obesity Policy Research and Evaluation Network (NOPREN); and the Robert Wood Johnson Foundation. The "ProQuest Dissertations and Theses: Global Database" was also included as a source of grey literature (Appendix A). REACH is a national program administered by the CDC to reduce racial and ethnic health disparities.[68] Healthy Eating Research is a national program administered by the Robert Wood Johnson Foundation with a mission to support and disseminate research on policy, systems, and environmental strategies that promote health among families with young children to advance health equity.[69] MedNar provides access to medical and health resources such as grey literature through a deep web search engine. NOPREN's research informs policies and practice to support equitable intake of healthy, nutritious foods.[70] The Robert Wood Johnson Foundation is dedicated to building a culture of health that provides everyone in America a fair and just opportunity for health and wellbeing.[71] Further, informal source identification (e.g., via listservs) and a search of references cited among sources identified to meet review inclusion criteria were also used.

Evidence Selection

The search strategy (Appendix A) for selected databases was implemented by one researcher (BH) in December 2022. Search results were documented and exported to DistillerSR, an automated management tool to screen and generate reports of literature reviews.[72] Two researchers (SP and ES) independently reviewed title and abstract information against review inclusion criteria and removed sources not pertaining to the review scope. Meetings were held between SP and ES to reconcile discrepancies. Next, BH and CBS reviewed source titles and abstracts to further refine sources before the full text review process. The full text review process was completed independently between SP and ES and meetings were held between CBS, BH, MCB, SP, and ES to reconcile discrepancies regarding sources identified to

meet review inclusion criteria. A second search process was conducted in July 2023 to identify sources published since review initiation was carried out. This search was carried out similarly to the original search, aside from MCB acting as a third check for searching processes that occurred independently between SP and ES. The grey literature searches (detailed above) were split between two researchers (SP and ES) and were carried out between March and May of 2023. All sources identified from grey literature searches among the two researchers were reviewed for agreement and discrepancies were reconciled. Regularly occurring meetings among the review team (BH, MCB, SP, ES, and CBS) also helped with decision making during the search processes.

Data Charting

The review team together determined the information categories to be extracted among included sources to answer the research question. A standard template was created in Microsoft Excel to guide the data extraction process and included: information about each source to aid in tracking and reporting (e.g., author name, publication year, source type); source and design characteristics (e.g., objective, design, location, funder); EDI strategy components, outcomes, and priority population information; information about if the design of EDI strategies aligned with any or all of the four recommended principles to address intersectional stigma[1]; and EDI strategy results and lessons learned, when available. For example, the four principles to address intersectional stigma were recommended to guide public health program design and implementation[1] and were used to understand if and to what extent nutrition program EDI strategies followed these recommendations. A critical appraisal of sources was not conducted due to misalignment with the scoping review research question and scoping review methodology used.[59]

The extraction of data to the template was carried about independently between SP and ES who also met to discuss discrepancies. Thereafter, a third researcher (MCB) reviewed data extraction information and worked with SP and ES to resolve any remaining discrepancies. Regularly occurring meetings among the review team (BH, MCB, SP, ES, and CBS) helped with decision making during this process.

Four Principles to Address Intersectional Stigma

1) Recognize and name how systems of power, privilege, and oppression intersect to impact individual experiences and fuel stigma;
2) Aim to dismantle systems of power, privilege, and oppression, and mitigate the harms caused by those systems;
3) Ensure community leadership and meaningful engagement;
4) Support collective action, cohesion, and resistance to address the intersecting axes of inequities.

Synthesis of Results

Evidence was arranged in figures and tables to showcase review findings. This included a visualization of publications included in the review by year and several tables about: the characteristics of included sources, including the priority population for the EDI strategy; how principles to address intersectional stigma were used in EDI strategy approach; and EDI

strategies grouped by category with associated results and/or lessons learned. Researchers used an inductive approach (i.e., grounded in the data) to group the identified EDI strategies by similarity in topic/scope, including: 1) designing or adapting programming for EDI; 2) provision of food justice or anti-racism trainings; 3) improving access to federal program services to advance EDI; 4) hiring or developing nutrition program workforce to better reflect/serve priority populations; 5) improving nutrition program partnerships to realize EDI; 6) improving EDI through tailored food access strategies; 7) policy changes to improve nutrition programs for EDI; 8) and nutrition organization changes for EDI. Importantly, the primary intent of EDI strategies was used for category groupings given overlap (e.g., improving partnerships can help advance EDI in other ways, such as by improving food accessibility). The order of EDI strategy categories are presented below based on the number of supporting sources (high to low). Two researchers (BH and MCB) further identified the salient patterns within tables and highlighted key findings in the results narrative. Narrative and tables have distinct information. Thus, readers should review both for a complete picture of the results.

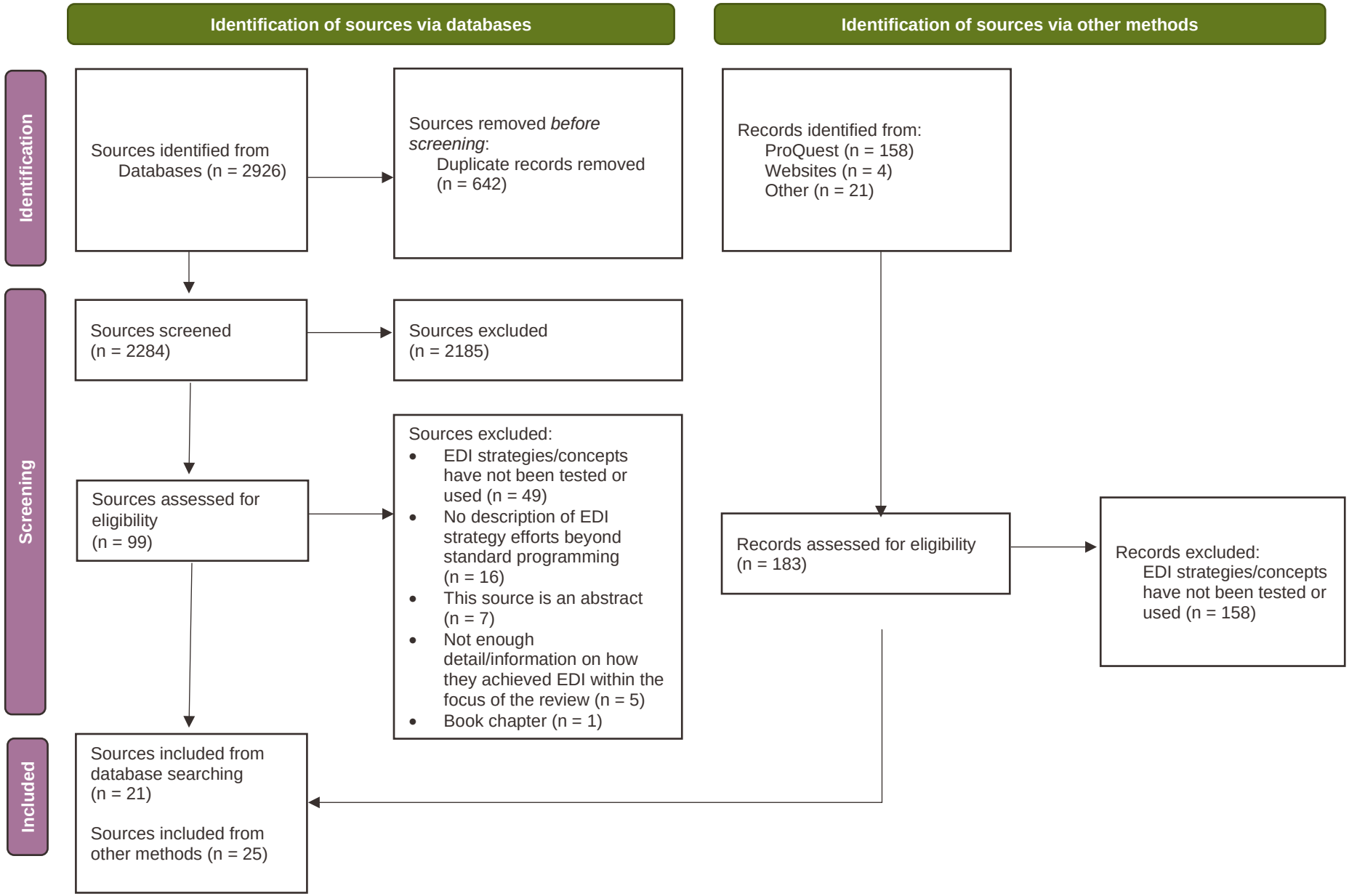


Figure 2: Distillation of sources included in a scoping review about equity, diversity, and inclusion strategies used in U.S. nutrition programming.

Scoping Review Results

Identification of Sources

Figure 2 shows the PRIMSA flow diagram of the search process. A total of 2,926 sources were located across databases and 2,093 records remained after duplicates were removed. Title and abstract review resulted in the exclusion of 2,284 sources, leaving 99 sources for full-text review. Of these, reasons for exclusion included: no applied EDI strategies (n=49); no application of EDI strategies beyond standard programming (n=16); source abstracts without sufficient detail (n=7); not enough details provided about the focus of the EDI strategy (n=5); and a book chapter to which the team did not have access (n=1). Sources identified from other methods included 158 records from ProQuest, four webpages, and 21 sources identified from other search methods. The 158 sources from ProQuest were all excluded due to not meeting inclusion criteria, leaving 25 grey literature sources that were included in the review. A total of 46 sources were found to meet inclusion criteria for this scoping review.

Source Characteristics

All sources were published between 2006 and 2023, with the majority (n=37; 80%) published within the last five years.[17,73–103] See Figure 3. Table 2 details the characteristics of all included sources, synthesized below.

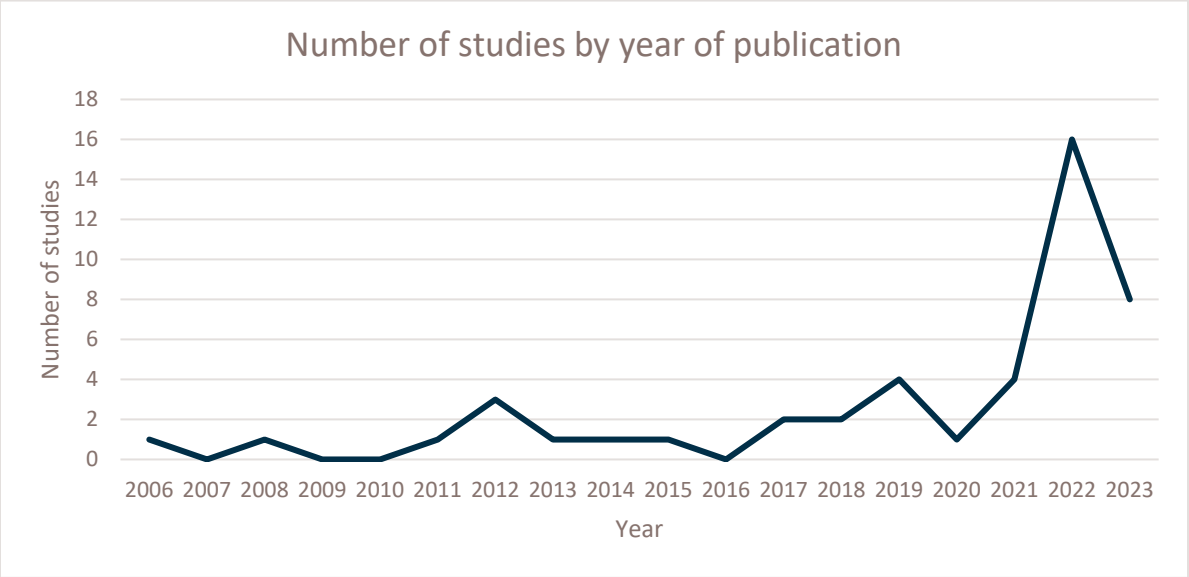


Figure 3: The number of studies by year of publication

Among the sources reviewed, 29 (63%) presented original research,[74,75,81,82,85–88,93,94,96–98,100–102,104–116] while ten (22%) were reports,[17,76–80,83,90,91,103] two (4%) were commentaries,[73,99] two (4%) were toolkits,[95,117] two (4%) were research briefs,[89,92] and one (2%) a reflective essay.[84] Case studies emerged as the most prevalent study design, accounting for 22 (48%) of the sources reviewed.[17,73,75–80,83,89–91,95,101–103,107,109,111,114,117] Following that, mixed methods studies comprised of nine (20%) sources,[84,93,96,106,108,110,112,113,115] quasi-experimental designs made up six (13%),[74,81,82,86,100,105] randomized control trials accounted for four (9%),[87,88,94,104] two were qualitative studies (4%),[97,98]and there was one source respectively using a modified

Delphi technique[116], content analysis,[87] and literature review.[99] Thirty-one studies (67%) did not report using a theory, model or framework,[17,73,74,76–80,82,83,87–93,95,96,99,101,103,104,107–110,112–114,117] and only one theoretical framework, the Social Cognitive Theory, was used more than once in five studies (11%).[94,100,105,106,116]

A total of 24 (52%) sources concentrated on federal nutrition programs,[17,74–83,86–91,100–102,110,112,114,117] 20 (43%) on community or local nutrition programs,[73,84,85,92–99,104–109,111,115,116] and two (4%) presented EDI strategies applicable to both federal and local nutrition programs (Table 2).[103,113] SNAP and WIC were the programs with the most EDI strategies tested in the studies, with six (13%)[17,83,89,101,102,114] and 12 (26%) sources,[17,76–80,82,86,90,91,112,113] respectively. Other federal programs or policies regarding implemented EDI strategies were the Child and Adult Care Food Program (CACFP) in three sources (7%)[81,87,88], Child Nutrition Programs (CNP) in three sources (7%),[17,75,117] Food Distribution Program on Indian Reservations (FDPIR) in two sources (4%),[17,87] EITC laws in one source (2%)[74], Farmers' Market Nutrition Program (FMNP) in one source (2%)[100] and Senior Farmers' Market Nutrition Program (SFMNP) in one source (2%).[110] Community-based nutrition programs that described implemented EDI strategies were focused on nutrition intervention projects/programs in 11 sources (24%)[92–94,96–98,104–107,116], food system interventions in seven sources (15%),[17,73,85,103,108,115,117] and food justice advocacy programming in two sources (4%).[109,111] Twenty-one (46%) of the sources were privately funded,[73,75–80,83,89–93,95,96,106,108,109,111] 21 (46%) were funded by government sources,[74,81,85–88,94,98–105,107,110,116,117] and four (9%) were funded by a mix of private and government funding.[17,82,84,97]

There were various priority populations across several geographies for whom EDI strategies were intended, although this information was often not explicit (Table 2). Several strategies were oriented towards federal food assistance staff members, with eight (17%) sources focusing on WIC staff.[76–80,86,90,91] and one (2%) source intended for SNAP-Ed staff.[84] Other strategies pertained to distinct staff categories, such as Farm-to-School program staff in one source (2%),[73] and three sources (7%) concentrated on Early Childhood Education (ECE) staff.[73,81,87] Furthermore, four sources (9%) directed EDI initiatives towards retailers, producers, and farmers.[17,103,110,114] Regarding nutrition program participants, eight sources (17%) included WIC participants (e.g., two among all WIC participants, two among Latino families enrolled in WIC, one among male WIC caregivers, one among a diverse group of pregnant people enrolled in WIC, one among rural WIC participants, one among Black and Latino families with a member enrolled in WIC),[17,76,77,82,91,100,112,113] while five sources (11%) were centered on Black, Indigenous, and People of Color (BIPOC) youth (e.g., one in BIPOC and rural youth, one in Indigenous children in ECE programs, one in Indigenous youth, one in Latino children, and one in Black youth).[73,88,92,105,106] Additionally, four sources (9%) focused on SNAP participants (e.g., two among all SNAP participants nationally, one among SNAP participants within one state, and one among Black and Latino community members using benefits at a local farmers' market)[83,89,101,102], and eight (17%) addressed local community members (e.g., two among Latino community members, two among Black community members, one among Latino and Black community members, one among American Indian community members, one among community members with low income and one among local community members).[93,94,97,108,109,111,115,116] Three sources (7%) were implemented in school districts for all students,[75,103,117] two sources (4%) engaged Indigenous community members[98,107], and

individual sources attended to ethnically diverse youth[96], Black parents,[106] rural community members,[104] families with limited income,[74] and Asian participants using food banks.[95]

Further, three sources (7%) focused nationwide (mainly during the COVID-19 pandemic[74,83,89]), three (7%) occurred in multiple states[17,75,117], and five (11%) were carried out among the tribal nations of Osage Nation (n=3), Navajo Nation (n=1), and Standing Rock Nation (n=1).[81,87,88,92,110] Other states where EDI strategies were implemented include California (n=5), Minnesota (n=4), Oregon (n=4), New York (n=3), Pennsylvania (n=3), Washington (n=3), Michigan (n=2), North Carolina (n=2), Connecticut (n=2), Louisiana (n=1), Maryland (n=1), Massachusetts (n=1), Tennessee (n=1), Texas (n=1), and Rhode Island (n=1) [73,76–80,82,84–86,90,91,93–109,111–116] One did not report location.[99]

Table 2. Characteristics of Sources Included in a Review of Equity, Diversity, and Inclusion (EDI) Strategies for Nutrition Programs in the United States (n=46 sources)

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
Ammons et al., 2021[73] Commentary	Described how the Center for Environmental Farming Systems community-based food systems initiatives responded to the COVID-19 pandemic	The Center for Environmental Farming Systems develops local food systems to support communities and increase resilience	Case study Not reported	Farm to school, early childcare centers (ECE), and members of the Food Youth Initiative in North Carolina	W.K. Kellogg Foundation; Blue Cross Blue Shield of North Carolina Foundation	1
Bain et al., 2021[84] Reflective Essay	Reflected on the first two years of Cultivating Powerful Participation Food Justice Facilitation Workshops to demonstrate the power and impact of approaching food justice through an action-oriented framework	Cultivating Powerful Participation Food Justice Facilitation Workshops equips leaders with skills, relationships, and tools to cultivate a vision of food justice	Mixed method phenomenological approach including surveys and open-ended questions (post-workshop evaluation and 9-month follow-up) Action-Oriented Framework	Supplemental Nutrition Assistance Program Education (SNAP-Ed) staff in Minnesota	SNAP-Ed; Minnesota Food Charter Network led by the University of Minnesota Institute for Healthy Foods and Healthy Lives	1
Baldridge et al., 2021[95] Toolkit	Provided examples of how to expand resources across cultures at the organizational, partner, and individual levels of food banks	Food banks and food pantries	Three Case studies Not reported	Participants at food banks in Washington	Kaiser Permanente	2
Brown et al., 2023[98]	Adaptations for Cooking Matters® from American	Adapting Cooking Matters®	Qualitative study using focus groups	American Indian community	National Institute on Minority	1

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
Original research	Indians with type 2 diabetes living in a rural reservation community		Barrera and Castro's Cultural Adaptation Framework	members in North Central United States (U.S.)	Health and Health Disparities (NIMHD); National Heart, Lung, and Blood Institute (NHLBI)	
Budge et al., 2023[112] Original research	Evaluated the Healthy Eating through Group Well-Child Care (GWCC) intervention aimed at encouraging responsive feeding practices among caregivers with lower income	The GWCC intervention, a collaborative effort between the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and primary care that used strategies such as nutrition education discussion, cooking demonstrations, and WIC staff eating with families and providing feedback.	Mixed methods study using quantitative data to measure infant growth and qualitative data for participant experiences Not reported	WIC participants in New Haven, Connecticut	Child Health and Development Institute of Connecticut, Inc	1
Byker Shanks et al., 2022[99] Commentary	Suggestions for measuring fruits and vegetables (FV) consumption using an EDI lens through the U.S. Department of Agriculture (USDA) National Institute of Food and Agriculture Gus	Gus Schumacher Nutrition Incentive Program is a grant program funding nutrition incentive and produce prescription programs for FV purchases among people experiencing low income	Review of FV measurement tools Not reported	None reported.	USDA National Institute of Food and Agriculture	0

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
	Schumacher Nutrition Incentive Program's National Training, Technical Assistance, Evaluation, and Information Center					
Calo et al., 2023[113] Original research	Described the implementation and initial results of three strategies to improve healthy eating among a Hispanic population	A Farmers' Market Nutrition Program, Veggie Rx, and a WIC bilingual breastfeeding education program	Used quantitative methods to measure outcomes for the Farmers' Market Nutrition Program (FMNP) and Veggie Rx programs, and mixed methods for the WIC breastfeeding education program (survey and focus groups) Not reported	WIC participants in Lebanon and Reading, Pennsylvania	Centers for Disease Control and Prevention (CDC), Division of Nutrition, Physical Activity, and Obesity (DNPAO)	0
Calo et al., 2022[100] Original research	Based on findings from a WIC usage survey, developed and implemented a Farm-to-WIC program, and reminders to promote redemption of the Pennsylvania Farmers'	FMNP provides vouchers to WIC participants	Quasi-experimental intervention including baseline and two-month follow up surveys Social Cognitive Theory	WIC participants in Lebanon County, Pennsylvania	CDC	0

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
	Market Nutrition Program (FMNP) vouchers					
Carcaise-Edinboro et al., 2008[104] Original research	Examined specific FV dietary behaviors for the control and intervention conditions of the Rural Physician Cancer Prevention Project	Rural Physician Cancer Prevention Project, assessed the effects of a low intensity, physician-endorsed dietary education intervention designed to improve dietary behavior in individuals who are from rural places and individuals who are minority	Randomized two-arm trial including results for one and six months post-intervention Not reported	Community members in rural Virginia	National Cancer Institute	1
Carney et al., 2012[93] Original research	The Harvest Fiesta Project piloted a peer network supporting the establishment of home gardens among Hispanic families	Harvest Fiesta project, a community-based participatory research project provided families with resources, materials, and volunteer and social network support for growing a home garden	Mixed methods study using quantitative measures of pre- and post- questionnaires and qualitative key informant interviews Not reported	Columbia River Gorge Latino community members in Oregon	National Institute of Child Health and Human Development	2
Centers for Disease Control and	Described tailored institutional practices to increase access to healthy foods in childcare centers	After-school meals, meals in ECE environments, and Bibb	Two Case studies Not reported	Children in Bibb County School District, Georgia and	CDC	1

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
Prevention, 2013[117] Toolkit	and practices to increase food access through school nutrition programs	County School Nutrition Program		ECE centers in southern Nevada		
Charbonneau et al., 2014[96] Original research	Described the Food Empowerment Education and Sustainability Team model and outcomes of youth participants	Food Empowerment Education and Sustainability Team, a youth-engagement strategy with a mission to "gather young people together to prepare and share healthy, delicious food, learn about growing food, and provide a space for youth to become actively engaged in issues of food resources and the built environment in their lives"	Mixed methods study using quantitative measures of pre- and post- surveys and qualitative narrative stories with youth Not reported	Youth in the communities of Delridge and White Center, Seattle	W.K. Kellogg Foundation	2
Elkaramany et al., 2023[101] Original research	Investigated how Oregon reached 100% Supplemental Nutrition Assistance Program (SNAP) participation rate in 2009	SNAP	Case study Not reported	SNAP participants in Oregon	USDA	1

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
Franck et al., 2023[114] Case study	Described how an Extension program helped a rural producer through the SNAP application process to accept electronic benefits transfer (EBT)	SNAP	Case study Not reported	Producers and farmers' market managers at Hardeman County, Tennessee	CDC High Obesity Program Cooperative	1
Gamblin et al., 2019[17] Report	Identified ways federal and non-federal nutrition programs apply racial equity principles to eliminate food security disparities	America's Healthy Food Financing Initiative, Child Nutrition Programs, Food Distribution Program on Indian Reservations (FDPIR), a local program for 20 produce growers on Wind River Indian Reservation, local transit subsidies, SNAP, and WIC	Three Case studies Not reported	WIC participants in Washington D.C., producers on the Wind River Indian Reservation in Wyoming	America's Healthy Food Financing Initiative Reinvestment Fund; USDA	1
Gans et al., 2018[94] Original research	Reported the results of the Live Well, Viva Bien trial which addressed personal and environmental determinants to increase FV consumption among populations with low income	Live Well, Viva Bien is a multicomponent intervention with discounted and mobile fresh FV markets (including culturally preferred produce) with bilingual nutrition education	Cluster, randomized controlled trial with focus groups conducted for intervention development and evaluation surveys collected at baseline, 6-months, and 12-months surveys	Residents in Providence, Pawtucket, and Woonsocket subsidized housing complexes in Rhode Island	National Cancer Institute	1

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
			Social Cognitive Theory			
Gatto et al., 2012[105] Original research	Pilot tested LA Sprouts, a culturally tailored cooking and nutrition education lesson, among Latino youth to measure behavior associated with dietary intake and psychosocial factors	LA Sprouts, a 12-week culturally tailored cooking and nutrition education lesson for Latino youth	Pilot quasi-experimental intervention study using baseline and post-intervention surveys Social Cognitive Theory	Hispanic students in schools in Los Angeles, California	Community Benefit Grant from Kaiser Foundation; Hospital Los Angeles; Childhood Obesity Research Center at the University of Southern California	0
Grier et al., 2015[106] Original research	Evaluated the feasibility of a 10-week experiential theory-based gardening and nutrition education program prioritizing youth living in public housing	Local experimental community garden program, a gardening and nutrition education program for youth living in public housing	Mixed methods study using surveys assessing pre-post surveys and interviews Social Cognitive Theory	Youth, parents, and site leaders in the Dan River Region of south-central Virginia and north central North Carolina	Virginia Foundation for a Healthy Youth	1
Hassel, 2006[107] Original research	Described the development, implementation, and conceptual model of a cross-cultural food and nutrition curriculum in upper-Midwest tribal colleges	Woodland Wisdom Nutrition Project, an approach of Tribal Colleges to address food and health concerns of indigenous communities	Developed a conceptual model based on the nutrition education curriculum for Woodlands Wisdom tribal colleges Not reported	Students at the College of Menominee Nation, Turtle Mountain Community College, Leech Lake Tribal College, White Earth Tribal and Com-	USDA Agricultural Experiment Station Project; University of Minnesota Extension Service	1

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
				munity College, Fond du Lac Tribal and Community College, Lac Courte Oreilles Ojibwa Community College and University of Minnesota		
He and Morales, 2022[102] Original research	Examined how the Model Farmers' Market Program developed for SNAP benefits redemption used principles of social embeddedness and moral economy to dignify populations who are underrepresented at the market	Model Farmers' Market Program for SNAP, a one-year program to improve food security for populations who are underrepresented	Case study Embeddedness and Moral Economy Framework	SNAP participants shopping at Brown Deer farmers' market, Wisconsin	American Family Insurance; Village of Brown Deer, Wisconsin	2
Healthy Eating Research, 2022[92] Research brief	Pilot tested Water is K'E, a community-based intervention to increase healthy beverage consumption, among four Family and Child Education preschools on Navajo Nation	Water is K'E is a community-based intervention to increase healthy beverage consumption by Navajo preschool children	Post-pilot convening of the intervention Not reported	Children at ECE centers in Navajo Nation	Robert Wood Johnson Foundation (RWJF)	2
Jernigan et al., 2012[97]	Conducted a community assessment using the	Adapted the Tool for Health and Resilience in	Focus groups with community members	Round Valley community	RWJF New Connections	2

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
Original research	locally adapted Tool for Health and Resilience in Vulnerable Environments	Vulnerable Environments policy engagement framework to be more culturally preferred for American Indian to conduct a community assessment and implemented policies to solve contextual upstream barriers to food insecurity	Tool for Health and Resilience in Vulnerable Environments Policy Engagement Framework	members in Mendocino County in Northern California	Active Living Research program; California Endowment; California Department of Transportation	
Johnson et al., 2019[103] New York City (NYC) Council Agenda	Reported on existing programs and recommendations for NYC on growing food equity to help facilitate access to food	Food Retail Expansion to Support Health program, Good Food Purchasing Program, NYC farmers' markets, community supported agriculture, Fresh Food Box, SchoolFood (NYC school food program)	Case study Not reported	Children in NYC schools, grocery stores, farmers' market, and community members in NYC	Federal funding; NYC Council	2
Katre et al., 2023[115] Original research	Examined an evolving social enterprise, Food Forward, to uncover how marginalized community members engage, build capacities, and exercise agency in the social innovation of food	Food forward is a social enterprise with a mission to provide residents with lower income more equitable access to nutritious foods	Mixed methods using surveys for feedback on meal kits and focus groups to share about participation in the social enterprise	Community members in Duluth, Minnesota in the Central Hillside neighborhood	Duluth Superior Area Community Foundation, Essentia Health, Community Contributions	2

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
	systems, and to identify early indicators of food-behavior changes		Collective- Agency Framework			
Komro et al., 2019[74] Original research	Examined the effects of state-level Earned Income Tax Credits (EITCs) on birth outcomes among women with a high school education or less, stratified by race and ethnicity	EITC laws	Quasi-experimental difference-in-difference design using multistate and multiyear data Not reported	U.S. infants and mothers with low income	NIMHD	1
Lagisetty et al., 2017[108] Original research	Evaluated partner preferences and barriers of the Virtual Shopping Program established to remove transportation barriers for individuals with low income	Virtual Shopping Program, a Baltimore City Health Department Program using online grocery ordering to deliver food to neighborhoods with low income	Mixed method study including post-intervention cross-sectional surveys and interviews with partners Not reported	Community members in Baltimore City, Maryland	RWJF	1
McLoughlin et al., 2020[75] Original research	Investigated emergency school meal service strategies adopted by four of the largest school districts in the U.S. at the beginning of the COVID-19 pandemic and evaluated the degree to which districts promoted	National School Lunch Program (NSLP)	Four Case studies Getting to Equity in Obesity Prevention Framework	Students at four school districts: Chicago Public Schools, Houston Independent School District, Los Angeles Unified School District, and New York City	RWJF; Nutrition and Obesity Policy Research and Evaluation Network	1

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
	equitable access to emergency nutrition programming during the pandemic			Department of Education		
Mello et al., 2017[109] Original research	Summarized the objectives and activities of the Food Diversity Project, which builds participant capacity to facilitate resident-led activities and carry out policy work among residents	Food Diversity Project was developed by Our Kitchen Table as a model offering community-owned solutions to food insecurity and to address the structural causes of disparities in Southeast Grand Rapids, Michigan	Case study Not reported	Community members in southeast Grand Rapids, Michigan	W.K. Kellogg Foundation	4
National WIC Association, 2022[76] Report	Catholic Charities WIC of Western New York aimed expand community partnerships, help families connect with social services, and train staff on EDI concepts	WIC	Case study using mixed methods including administrative data, surveys, and interviews with WIC staff and community partners Not reported	WIC participants and staff at Western New York (Erie, Niagara, and Chautauqual counties)	Walmart Foundation	1
National WIC Association, 2022[77] Report	DePaul Community Health Centers WIC aimed to expand community connections and address social determinants of health	WIC	Case study using mixed methods including administrative data, surveys, and interviews with WIC staff and participants	WIC participants and staff at DePaul Community Health Center, Louisiana	Walmart Foundation	2

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
	(SDOH) through a WIC Navigator to help increase enrollment. The study also aimed to expand awareness of EDI concepts among WIC staff		Not reported			
National WIC Association, 2022[90] Report	Hennepin County WIC aimed to expand training opportunities for breastfeeding peer counselors who are underrepresented	WIC	Case study using mixed methods including administrative data, surveys, and interviews with peer counselors Not reported	Breastfeeding peer counselors through WIC at Hennepin County, Minnesota	Walmart Foundation	1
National WIC Association, 2022[91] Report	Josephine County WIC aimed to expand community partnerships to increase WIC enrollment through a van providing WIC services and provide EDI training to WIC staff	WIC	Case study using mixed methods including administrative data, surveys, and interviews with partners and WIC staff Not reported	WIC participants and staff at Josephine County, Oregon	Walmart Foundation	1
National WIC Association, 2022[79] Report	Macomb County WIC aimed to conduct an organizational assessment to assess readiness and capacity to	WIC	Case study using mixed methods including administrative data, document review, surveys, and	WIC staff at Macomb County, Michigan	Walmart Foundation	2

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
	engage in and implement a health equity frame within Macomb County WIC and develop new policies to address EDI outreach		interviews with WIC staff Not reported			
National WIC Association, 2022[78] Report	Morrisania WIC aimed to expand community outreach for WIC breastfeeding peer counselors, train breastfeeding peer counselors who are underrepresented, and train WIC staff on EDI concepts	WIC	Case study using mixed methods including administrative data, surveys, and interviews with partners and peer counselors Not reported	WIC staff at Morrisania, New York and attendees at breastfeeding peer counselor training from California, Mississippi, Washington DC, Alabama, Texas, and New York	Walmart Foundation	2
National WIC Association, 2022[80] Report	Tulare County WIC aimed to develop a task force with Tule River Health Center to expand WIC outreach and increase awareness of EDI concepts among WIC staff and provide educational courses	WIC	Case study using mixed methods including administrative data, surveys, and interviews with Tule River Health Center and WIC staff Not reported	Taskforce members including healthcare and tribal partners, WIC participants, and WIC staff at Tulare County, California	Walmart Foundation	1
Patel et al., 2023[81]	Examined the effectiveness of a	Child and Adult Care Food Program (CACFP)	Examined ECE program meals and menus at	Food service staff, program directors,	NIMHD	1

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
Original research	Community-Based Participatory Research (CBPR) intervention including nutrition training and optimal nutrition menu implementation, with food service staff, on the meal and menu quality in tribally affiliated ECE programs		baseline and post intervention (4, 6, 12 months) Ecological Framework	and site administrators at ECE centers in Osage Nation, Oklahoma		
Ridberg et al., 2022[82] Original research	Determined the extent to which the $40 monthly vouchers reduced food insecurity and increased FV consumption among pregnant people with low income	WIC	Quasi-experimental intervention design using baseline and follow-up surveys at 3 months post-intervention Not reported	WIC participants in San Francisco, Alameda, and San Mateo Counties, California	RWJF; Department of Public Health, City and County of San Francisco	0
Robert Wood Johnson Foundation, 2021[83] Report	Outlined changes to SNAP during the COVID-19 pandemic and how they contributed to advancing health equity	SNAP	Case study Not reported	U.S. SNAP participants	RWJF	0
Ruelle, Morreale, and	Evaluated the contributions and patterns of use of the	Senior Farmers' Market Nutrition Program, a national program	Mixed methods approach including interviews with elders	Farmers' market vendors at Standing Rock Nation of the	National Science Foundation	3

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
Kassum 2011[110] Original research	Senior Farmers' Market Nutrition Program, in efforts to restore the food sovereignty of Standing Rock Nation and to compare potential additional market locations and their ability to improve program equity by reducing travel costs for participating elders and vendors	administered by state and tribal agencies providing elders with low income with vouchers for FV at farmers' markets	and farmers' market vendors and geographic information systems Not reported	northern Great Plains, North Dakota, South Dakota		
Sands et al., 2018[111] Original research	Described the Holyoke Food & Fitness Policy Council, a collaborative model to increase access to healthy food in a primarily Latino community	Holyoke Food & Fitness Policy Council, developed by Nuestra Comida to develop partnerships, leadership, and increase access to healthy culturally preferred food	Case study Theory of Change	Community members of the city of Holyoke, Massachusetts	W.K. Kellogg Foundation	3
Santilli et al., 2022[85] Original research	Reviewed documents from the Coordinated Food Assistance Network's to determine alignment with the framework of Collaborating for Equity and Justice	Greater New Haven Coordinated Food Assistance Network, a community coalition to address systems level issues in local food assistance programs	Content analysis Collaborating for Equity and Justice Framework	Documents reviewed for the community of New Haven, Connecticut	CDC	2

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
Santoro et al., 2022[86] Original research	Described an antiracism training for WIC staff and showed the training framework, design, key training components, and the evaluation	WIC	Pre-post surveys with WIC providers at baseline, immediately after, and six months post training Cultural Humility Framework	WIC staff at Philadelphia, Pennsylvania	National Institutes of Health	2
Sisson et al., 2019[87] Original research	Described the development and implementation of a CACFP best-practice menu training for staff at nine ECE centers as part of the Food Retail Expansion to Support Health study, a CBPR study	CACFP and FDPIR	Randomized, wait-list controlled trial Not reported	Food service staff at ECE centers in Osage Nation, Oklahoma	NIMHD	1
Taniguchi et al., 2022[88] Original research	Reported results from a CBPR intervention within nine ECE programs after developing and implementing a culturally preferred nutrition and gardening intervention as part of the Food Retail Expansion to Support Health study	CACFP	Randomized wait-list controlled trial Not reported	American Indian children at ECE centers in Osage Nation, Oklahoma	NIMHD	0

Source Author & Publication Year Source Type	Objective	Program(s)	Design Theory, Model, or Framework	Priority Population(s) and Location(s)	Funder(s)	Number of Principles Used to Address Intersectional Stigma[1]*
Thompson et al., 2023[116]	Convened two community advisory boards to identify changes for an existing evidence-based intervention and prepare it for implementation in a community to achieve more equitable outcomes	Family Eats, a program that works directly with parents to modify the home food environment, supporting healthy child nutrition by enhancing availability of healthy foods and healthy food-related practices.	Modified Delphi technique Social Cognitive Theory	Black or African American families and community leaders in Houston, Texas	The National Cancer Institute	1
Wheaton and Kwon, 2022[89] Research brief	Examined the individual and combined effects of two policies affecting SNAP, the re-evaluation of the Thrifty Food Plan, and emergency allotments during the COVID-19 pandemic	SNAP	Case study Not reported	U.S. SNAP participants	RWJF	1

Note: EDI, equity, diversity, inclusion; ECE, early childhood education; SNAP-Ed, Supplemental Nutrition Assistance Program Education; U.S., United States; NIMHD, National Institute on Minority Health and Health Disparities; NHLBI, National Heart, Lung, and Blood Institute; GWCC, Group Well-Child Care; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children; FV, fruits and vegetables; USDA, United States Department of Agriculture; FMNP, Farmers' Market Nutrition Program; CDC, Centers for Disease Control and Prevention; DNPAO, Division of Nutrition, Physical Activity, and Obesity; SNAP, Supplemental Nutrition Assistance Program; EBT, electronic benefits transfer; FDPIR, Food Distribution Program on Indian Reservations; RWJF, Robert Wood Johnson Foundation; NYC, New York City; EITC, Earned Income Tax Credits; NSLP, National School Lunch Program; SDOH, Social Determinants of Health; CBPR, Community-Based Participatory Research; CACFP, Child and Adult Food Care Program

*The four principles of intersectionality are 1) Recognize and name how systems of power, privilege, and oppression intersect to impact individual experiences and fuel stigma; 2) Aim to dismantle systems of power, privilege, and oppression, and mitigate the harms caused by those systems; 3) Ensure community leadership and meaningful engagement; and 4) Support collective action, cohesion, and resistance to address the intersecting axes of inequities.[1]

Intersectionality Principles

Table 3 presents the number of reviewed sources that used one or more of the four principles recommended to address intersectional stigma[1] in developing EDI strategies to create more inclusive and tailored programs for nutrition program participants. Thirty-nine sources (85%) used at least one principle regarding understanding and addressing stigma experienced by individuals participating in nutrition programming.[17,73–81,84–87,89–98,101–104,106–112,114–117]

A key component of the EDI strategies implemented in seven sources (15%) was acknowledging how systems of power, privilege, and oppression intersect and perpetuate inequalities within communities.[79,85,86,102,109–111] By identifying and naming these systems, the implementers aimed to raise nutrition program staff's and community members' awareness and foster a deeper understanding of how various societal structures contribute to the marginalization of certain groups. This awareness is vital for developing effective nutrition programming that actively addresses the root causes of inequities and dismantles the barriers for people who are at an increased risk of nutrition insecurity.[118]

Sixteen sources (35%) emphasized the importance of actively working to dismantle systems of power, privilege, and oppression that perpetuate inequities and hinder the realization of food justice.[17,73,74,78,79,81,85,87,89,102,103,107,110,111,115,117] By adopting a proactive approach, the programs sought to challenge and transform internal structures to create more inclusive and equitable nutrition programs, for example by reevaluating policies, practices, and cultural norms that perpetuate discrimination and working towards promoting fair systems.

Twenty-two sources (48%) emphasized the need for meaningful engagement and community leadership in the design and implementation of EDI strategies in nutrition programs.[17,77,80,84,90,92–98,101,103,104,106,108,109,112,115,116] By involving community members as active, powerful, and wise decision-makers, the implementers aimed to create solutions to better address the specific needs and aspirations of the communities they served. This approach may have helped to build trust, foster a sense of ownership, and ensure interventions were culturally preferred.[119] Still, some lessons learned from these studies suggest better opportunities to provide the necessary resources, support, and funding to center the voices of community leaders and actualize their vision (described more below).[17,77,90,106,111]

Among 16 sources (35%), the implemented EDI strategies fostered collective action, solidarity, and resistance against intersecting axes of inequities.[75–79,86,91–93,95–97,103,109,110,114] By promoting collaboration and building coalitions within communities, the programs aimed to amplify the collective voice and power of marginalized groups to challenge and change oppressive systems. However, the lack of specificity in reporting regarding priority populations for EDI strategies (Table 2) makes it difficult to conclude for whom (which intersecting identities) the strategies were designed for.

Table 3. Principles to Address Intersectional Stigma Used in Sources Included in a Review of Equity, Diversity, and Inclusion Strategies for Nutrition Programs in the United States (n=39 sources)*

Principles to Address Intersectional Stigma[1]	**Citations**
Recognize and name how systems of power, privilege, and oppression intersect to impact individual experiences and fuel stigma. **n = 7 sources**	He and Morales, 2022; Mello et al., 2017; National WIC Association, 2022 Macomb County; Ruelle, Morreale, and Kassum, 2011; Sands et al., 2018; Santilli et al., 2022; Santoro et al., 2022.
Aim to dismantle systems of power, privilege, and oppression, and mitigate the harms caused by those systems. **n = 16 sources**	Ammons et al., 2021; Centers for Disease Control and Prevention, 2013; Gamblin et al., 2019; Hassel et al., 2006; He and Morales, 2022; Johnson et al., 2019; Katre et al., 2023; Komro et al., 2019; National WIC Association Macomb County, 2022; National WIC Association Morrisania, 2022; Patel et al., 2023; Ruelle, Morreale, and Kassum, 2011; Sands et al., 2018; Santilli et al., 2022; Sisson et al., 2019; Wheaton and Kwon, 2022.
Ensure community leadership and meaningful engagement. **n = 22 sources**	Bain et al., 2021; Baldridge et al., 2021; Brown et al., 2023; Budge et al., 2023; Carcaise-Edinboro et al., 2008; Carney et al., 2012; Charbonneau et al., 2014; Elkaramany et al., 2023; Gamblin et al., 2019; Gans et al., 2018; Grier et al., 2015; Healthy Eating Research, 2022; Jernigan et al., 2012; Johnson et al., 2019; Katre et al., 2023; Lagisetty et al., 2017; Mello et al., 2017; National WIC Association DePaul Community Health Centers, 2022; National WIC Association Hennepin County, 2022; National WIC Association Tulare County, 2022; Sands et al., 2018; Thompson et a., 2023.
Support collective action, cohesion, and resistance to address the intersecting axes of inequities. **n = 16 sources**	Baldridge et al., 2021; Carney et al., 2012; Charbonneau et al., 2014; Franck et al., 2023; Healthy Eating Research, 2022; Jernigan et al., 2012; Johnson et al., 2019; McLoughlin et al., 2020; Mello et al., 2017; National WIC Association Catholic Charities, 2022; National WIC Association DePaul Community Health Centers, 2022; National WIC Association Josephine County, 2022; National WIC Association Macomb County, 2022; National WIC Association Morrisania, 2022; Ruelle, Morreale, and Kassum, 2011; Santoro et al., 2022.

*Seven sources did not describe using principles to address intersectional stigma.

Designing or Adapting Nutrition Programs for EDI

This EDI category includes strategies used to create or adapt nutrition program components to better reflect the needs of priority populations, to create more relevant and inclusive programs, and was described among eighteen sources (39%) (Table 4).[17,81,87,88,92–95,97,98,100,104–107,112,116,117] This included gaining community partners' input to align with the cultural[92,94,95,98,104,105,107,112,116] and contextual dynamics[17,81,87,88,93,97,100,106,117] of the communities they aimed to assist. Diverse nutrition program types used these EDI strategies, such as food banks offering culturally suitable foods,[95] culturally or contextually tailoring nutrition education curricula,[92–94,98,104–107,112,116] addressing contextual barriers (e.g., food assistance stigma, lack of healthy food access, childcare costs, transportation to farmers' market) or providing preferred incentives (e.g., diapers) identified by priority populations[17,97,100,117], and in tribal CACFP sites, implementing culturally preferred nutrition curriculum, menus, and best practices.[81,87,88]

Often, priority population engagement to design or adapt nutrition program components was used, although the degree to which populations were engaged varied. Some EDI strategies solely involved participants during the design stages, employing methods such as focus groups,[94,98] informally seeking participant input,[17,93,95,112] and conducting surveys.[100] Alternatively, other strategies engaged participants across all phases—design, implementation, and evaluation—by creating and maintaining community advisory boards,[92,97,104,106,116] gathering insights from community forums and involving academics from the priority population,[107] and co-designing strategies with implementers (e.g., school food service staff) and closely connected community members (e.g., school staff and administrators).[81,87,88,117] Notably, one source detailed a sustained community-academic partnership that employed multiple strategies, including co-designing the intervention with community leaders and requesting the community's input through community forums, in-depth interviews, and focus groups involving both implementers and participants.[106]

There were seven examples of this type of EDI strategy being used within the context of federal programs (e.g., WIC, FMNP, CNP, CACFP, and FDPIR). These federal initiatives incorporated anecdotal participant input,[17,112] conducted participant surveys,[100] and fostered collaborative design efforts between implementers and researchers.[81,87,88] Among the reviewed sources, one source featured a culturally tailored WIC nutrition education curriculum,[112] while three tackled contextual barriers through program changes, including addressing school lunch stigma by changing the process for free and reduced priced meals[117], providing farmers' market grab bags at a WIC clinic,[100] and providing free childcare and preferred incentives such as diapers to promote attendance of a breastfeeding support group at a WIC clinic.[17] Moreover, three sources adopted co-design strategies to enhance tribal CACFP menus and implement best practices through engagement with implementers (e.g., school food service staff).[81,87,88]

Eleven sources highlighted EDI strategies rooted in local programs (e.g., food banks/pantries[95], Cooking Matters[98], Family Eats[116], the Harvest Fiesta Project[93], Rural Physician Cancer Prevention Project[104], LA Sprouts[105], Live Well/Viva Bien[94], community garden programs[106], Woodland Wisdom Nutrition Project[107], Water is Ke[92], locally-adapted tool for health and resilience in vulnerable environments[97]). One example involved the provision of culturally preferred food within food banks,[95] while the remaining sources described using

input to design and adapt culturally and contextually tailored nutrition education interventions tailored to their respective priority populations.[92–94,98,104–107,116]

Table 4. Strategies to Design or Adapt Nutrition Programming to Advance Equity, Diversity, and Inclusion (EDI) (n = 18 sources)

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
Baldridge et al., 2021[95] Food banks or food pantries	Food banks provided culturally preferred foods such as tofu, soy milk, ramen, fish, and rice to help expand food choices. A participant-choice model at food banks was adopted to decrease food waste and improve participants' experience and help increase reaching people of various cultures. Culinary training programs and community kitchens were facilitated to promote food access, nutrition, and shared skills to help expand food bank reach among clientele. Cooking demonstrations were offered to engage the community and make food more accessible to populations from various cultures and to help expand food bank reach.	None reported.	None reported.	None reported.	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
Brown et al., 2023[98] Cooking Matters	Using Barrera and Castro's Cultural Adaptation Framework, feedback from American Indian community members was elicited to identify Cooking Matters adaptations and the appropriateness of the adaptations. Researchers linked the feedback on contextual factors, content, and delivery to the adaptations needed for American Indian audiences.	17 American Indian participants described as: 82% female; 47% between 40-49 years old; 65% had three or more adults in their household; and 94% had income of less than $48,001 per year.	Identified contextual factors and suggested adaptations of Cooking Matters curriculum for American Indian community members.	Contextual factors identified by participants included: limited supermarket availability and transportation; limited access to healthy foods due to Food Distribution Program on Indian Reservations (FDPIR) or Supplemental Nutrition Assistance Program (SNAP) restrictions; and an intergenerational burden of diabetes. Additional content and delivery adaptations included: food budgeting and meal planning for multigenerational families; providing traditional American Indian foods and local foods; diet management for people with type 2 diabetes; and proper storage of fresh fruits and vegetables (FV).	Community-based approach and integrating historical, social, and political contexts and cultural traditions, beliefs, and values is important when working with American Indian populations.
Budge et al., 2023[112]	An existing protocol and clinician training for the Healthy Eating through	Yale Pediatric Primary Care Center patients. The Primary Care Center	None reported.	None reported.	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)	Group Well-Child Care program were adapted to integrate food-related asset-based parenting discussions and activities. Adaptations stemmed from interactive sessions and taste testing involving Spanish- and English-speaking WIC participants, revolved around affordable and nutritious cooking using WIC benefits, as well as enhancing family mealtimes and responsive feeding methods. Notably, adjustments like culturally preferred recipe modifications were among the implemented adaptations.	served a population that self- described as 51% Black and 45% Latino with children primarily covered by state-funded health insurance within families that often have limited health literacy.			
Calo et al., 2022[100] WIC	Administered a survey to understand opportunities for facilitating WIC participants' use of the Farmers' Market Nutrition Program vouchers and used the findings to	100 WIC participants in Lebanon County, PA responded to a usage survey. The county was described as an area with a high prevalence of people with type 2	Facilitated Farmers' Market Nutrition Program voucher redemption.	Several ideas to improve the program were shared among some; for example: a need for more places to use vouchers (47%); offering a variety of FVs (27%); extending farmers'	In response to survey findings, locally tailored strategies included establishing a Farm-to-WIC program, grab bags of seasonal FV, bilingual community

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	develop and implement ~~a~~ Farm-to-WIC events at local WIC clinics to reduce transportation challenges and improve voucher redemption and providing reminders to use voucher benefits among WIC participants.	diabetes, obesity, and heart disease. 42% of those surveyed reported Hispanic ethnicity. 57 participants (32% Hispanic; 70% prior WIC participants) were included in the reminder component of the intervention.		market hours (27%); and the location of farmers' market stands (19%). After the Farm-to-WIC program was implemented in 2020, 580 vouchers were used to purchase grab bags with a value of more than $1,740 in FVs. In 2021, another 357 vouchers were redeemed with a value of more than $1,071. Participants who received a reminder redeemed more vouchers compared to participants not receiving a reminder.	health worker, and reminders to use the vouchers, including recipes in the grab bags.
Carcaise-Edinboro et al., 2008[104] Rural Physician Cancer Prevention Project	A low-intensity, physician-endorsed dietary intervention included personalized dietary feedback and low literacy (6th grade level) nutrition education materials that were developed in coordination with a professional literacy expert and with input from local community members	A rural population including 623 participants at follow-up, characterized as: a mean age of 49 years; 65% female; 61% White; 37% African American; and 2.7% other.	Increased FV intake and knowledge of FV recommendations.	FV intake at one- and six-months post-intervention increased among older and younger participants and those with some college education; FV intake was maintained at 12 months among those who did not complete high school. African American participants had significantly greater	A shorter intervention duration to avoid heavy participant burden was recommended. It was considered helpful to include the priority population in the creation of the intervention materials.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	(specifically from people of color living in rural communities). Also, a 12-member advisory board met regularly for a year, and provided insights on community and cultural dietary behaviors, as well as local restaurant and grocery store offerings.			intentions to increase FV intake than White or other participants. Knowledge of FV significantly increased at 12 months, particularly among men.	
Carney et al., 2012[93] The Harvest Fiesta Project	Community members hosted meetings each month to provide relevant materials, information about gardening, and peer support with home gardening. The intervention took place over two years.	38 families in the Columbia River Gorge community; 96% White with 27.2% of Hispanic ethnicity, and 18.1% are uninsured.	Improved vegetable intake and stress about food running out or skipping meals.	Adult vegetable intake of "Several times a day" increased from 18.2% to 84.8%, and children's vegetable intake of "Several time a day" increased from 24.0% to 64.0%. Before the gardening season, the sum of the frequencies of "Sometimes" and "Frequently" worrying in the past month that food would run out before money was available to buy more was 31.2% and dropped to 3.1% during the post garden period. Meal skipping due to lack	The academic-community partnership was beneficial as the efforts were community-led with guidance of survey development and analysis from the academic partner.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
				of money was not statistically different before and after the gardening season. From the key informant interviews, gardening brought feelings of food security and helped carry out traditions of growing culturally preferred foods.	
Centers for Disease Control and Prevention, 2013[117] After-school meals, meals in Early Childhood Education (ECE), and school nutrition program	In collaboration with school nutrition staff, school administrators, and Title I Home-School Facilitators, a meal accounting system was established to reduce stigma and prevent obvious identification among students receiving free or reduced meals.	All schools located in the Bibb County School District in Georgia.	None reported.	None reported.	None reported.
Gamblin et al., 2019[17] WIC	Incentives requested by WIC participants, such as free childcare and diapers were offered to improve WIC class participation. Offering free childcare	Mary's WIC Center participants located in Washington, DC. Most participants were described as living in households with low-	None reported.	None reported.	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	allowed parents to focus on babies during breastfeeding classes.	income and the majority of clientele at the clinic are people of color.			
Gans et al., 2018[94] Live Well, Viva Bien	Adapted FV types sold at the market based on customer feedback/request and pre-study focus groups with residents living in subsidized housing to increase cultural relevance of the FV available.	1597 residents enrolled; 837 receiving the intervention and 760 in the control group.48% participants identified as White; 17% as Black, 20% as more than one race. Most participants were Hispanic (54%) of which 45% were Dominican and 44% Puerto Rican, with an additional 11% from other cultural groups. 41% of the participants spoke only English at home, with 19% speaking only Spanish and 33% speaking both languages. The largest group of participants (33%) reported their employment status as "disabled," while 21% reported that they were unemployed; 21%	Increased FV consumption.	From baseline to 12 months, the intervention group increased total FV intake by 0.44 cups with the control group decreasing intake by 0.08 cups. There was a clear dose response effect of the FV markets with participants who reported attending all (2.1 cups) or most of the markets (0.86 cups) increasing FV intake, compared with less than half cup increases for lower levels of market attendance. ($p < .05$) Use of DVDs, recipes, and taste-testing were associated with greater increases in FV intake.	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
		retired, and only 15% working full or part time.			
Gatto et al., 2012[105] LA Sprouts	A culturally tailored cooking and nutrition education lesson ("LA Sprouts") taught by a bilingual Latina master gardener was implemented over the course of 12 weeks and included interactive gardening lessons about growing culturally preferred FVs and visits to a farmers market including $1 FV vouchers.	34 students of a predominantly Latino elementary school participated in the intervention, and were described as 62% female, 85% Latino, and 15% mixed.	Improved preference for FVs among youth classified as overweight or obese and among females compared to males (compared to a control). Improved psychosocial factors about gardening compared to control.	Overall, preferences for FVs increased among all for pears, carrots, and nopales and participants were 54% more likely to report "vegetables from the garden taste better than vegetables from the store." Among youth considered overweight/obese, the intervention resulted in an approximate two-point increase in FV preference. Females also showed a significant increase in vegetable preference after the program.	A main challenge was limited opportunities for in-person contact when creating and maintaining relationships.
Grier et al., 2015[106] Local community garden program	A ten-week community garden curriculum (including gardening techniques and maintenance, food and nutrition, food preparation safe practices, and taste testing) was adapted for cultural relevance,	43 youth (primarily African American), 25 parents, and two site leaders in the Dan River Region of Virginia and North Carolina participated in the study.	Increased self-efficacy, knowledge, and willingness to try FV among youth and curriculum acceptability.	Youth demonstrated significant improvements in: self-efficacy for asking for FV; gardening knowledge; knowledge of plant parts; MyPlate knowledge. Most youth liked the food sampling, games, and gardening	Site leaders' youth relationships were beneficial for food sampling activities (e.g., role modeled trying unfamiliar foods). However, several challenges were noted: youth noise and

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	including a popular line dance and song, and site leaders of two public housing sites assisted with planning, initiation, and maintenance of gardens, problems to focus on, and youth recruitment.			experiences. The most acceptable curriculum components were food sampling, games, and gardening experiences. To improve recruitment and engagement recommendations included distribution of printed materials and door-to-door solicitation. Also, site leaders described better cohesion and positive interactions among the youth in the program along with increased willingness to try FVs.	distraction during curriculum delivery (i.e., more classroom management than instruction); parent presence during the lessons (i.e., inhibited learning and increased expression of FV dislike).
Hassel, 2006[107] Woodland Wisdom Nutrition Project	Community-based forums at tribal colleges were conducted as part of the Woodlands Wisdom Nutrition Project, including local tribe members and Indigenous academic collaborators, to develop nutrition curriculum tailored toward the perspectives, values, and	Students attending two-year science degree programs at tribal colleges located in the upper-Midwest.	None reported.	None reported.	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	epistemologies of Indigenous peoples: 1) personal experience or the lived experience of personal food choices influenced by personal identify, life priorities, relationships and food access; 2) Indigenous science or the ancestral systems of earth, water, plants, animals, and balance as the keys to health; and 3) biomedical science or views of food as chemical composition and nutrition as measurable interactions.				
Healthy Eating Research, 2022[92] Water is K'E	A culturally preferred intervention–Water is K'E–guided by community advisors was developed and implemented, including four monthly lessons with activities focused on Navajo words of the month, health benefits of water, why sugar is unhealthy, and	Children enrolled in four Family and Child Education ECE preschools on the Navajo Nation (included 21 households), which was described as having disproportionately high rates of diet-related chronic diseases among children and adults.	Increased healthy beverage consumption, decreased consumption of sugary drinks, and increased caregiver knowledge of water traditions.	As a result of the intervention, children consumed 21% less sugary drinks, 16% more water, and were reported drinking more unflavored milk and less flavored milk. Both caregivers' knowledge about Navajo people's water traditions and the influence of Diné	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	caregiver skills to promote water.			traditions on the types of beverages offered to children more than doubled.	
Jernigan et al., 2012[97] Locally adapted Tool for Health and Resilience in Vulnerable Environments	Formed a community coalition of ten members including community leaders, Health Center staff, California Indian Health Service representatives, and academic researchers to lead the community assessment efforts. Members of the community coalition recommended conducting focus groups with community members to adapt the Tool for Health and Resilience in Vulnerable Environments framework and make it more culturally appropriate (e.g., employ storytelling as a data collection form to provide feedback instead of an online survey).	40 American Indian community members engaged in focus groups.	Engaged community members to adapt the Tool for Health and Resilience in Vulnerable Environments framework to the local community.	Racial justice was the greatest issue in the community rated 'high' by 27 of the 40 participants. 29 of the 40 focus group participants scored priorities of: (i) 'jobs and local ownership'; (ii) what's sold and how it's promoted and (iii) look, feel and safety. After the focus groups, members of the community coalition: met with owners of farms, grocery stores, and gas stations to discuss access to healthy food; started a producer's guild and started a community-supported agriculture program; worked with a local grocery store to change shelf space	The community coalition was critical to the success of the project.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
				allocation; wrote a grant for community members to engage in culturally preferred methods of physical activity.	
Patel et al., 2023[81] Child and Adult Care Food Program (CACFP)	Osage Nation community members guided culturally preferred healthy CACFP menu modifications over a six-week period in nine ECE and were involved in all stages of development. Food service staff reviewed and revised menus to address specific barriers and needs within each school kitchen setting.	Food service staff (n=9), program directors (n=9), and site administrators (n=3) from each of the nine ECE centers.	Improved ECE menus based on meal Healthy Eating Index (HEI) scores.	HEI scores significantly increased from baseline to four-months post implementation, however, changes were not sustained from baseline to 12 months post-intervention.	As menu changes were not sustained long-term, additional staff education and training may help with sustainability.
Sisson et al., 2019[87] CACFP and FDPIR	CACFP sites participated in a three-hour tailored training implemented over a 15-week period on implementing CACFP best-practice healthy menus within tribal ECE environments. This was developed based on meetings between research staff and ECE	Food service staff at nine ECE centers. Osage Nation was described as having a 23% poverty rate, 77% of tribal members classified as overweight and 36% as obese.	Challenges to changing the CACFP menu and development of tailored training.	Limited food availability, local infrastructure including budget, site storage, staff and time availability, and the variability in the size of the ECE programs were prominent challenges. Culturally preferred training modules were developed to address: the	It was important to have on-site technical assistance to aid in kitchen workflow and food preparation. Working with the site manager and cook was beneficial for understanding perceived barriers.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	program teachers, site managers, and food preparation staff regarding changing meal patterns, community partner food preparation, vendors, storage, and educational, staff, and infrastructure needs.			importance of meeting best practices; best practices in food preparation; menu planning; food labels; and recipe modifications. Module topics ranged from general theory such as "why meet best practices" to hands on approaches such as "Menu planning". There were also opportunities to make adaptations at each site.	
Taniguchi et al., 2022[88] CACFP	A six-month Farm-to-School nutrition and gardening intervention was developed including culturally preferred food among a leadership committee and Osage Nation staff, and included CACFP menu modifications for local fresh vegetables, more FV, whole grains, reduced fried foods, and no sugar-sweetened beverages. The intervention also included	193 American Indian children in nine ECE programs and 170 parents.	Improved child and parent dietary intake, body mass index (BMI), and weight status, and food insecurity.	Squash and bean intake and willingness to try beans significantly increased (compared to a control group) among children. Parent FV intake slightly increased (compared to a control group). No other significant differences were observed.	Per the authors, this study would have benefited from a more comprehensive parent component given low participation.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	a parent component with video modules and in-person family night workshops.				
Thompson et al., 2023[116] Family Eats	Community leaders from organizations serving Black or African American individuals formed a community advisory board and guided the tailoring of a child obesity prevention program using a modified Delphi technique approach.	12 people who worked at community-based organizations in the Houston, Texas area serving the Black or African American community.	Identified adaptations to the Family Eats program through conversations with the community advisory board.	Adaptations to how the families in the program should be depicted (e.g., updating the family appearance to be more realistic and less cartoon-like, and including greater variety in skin tones and facial features), warmer and closer family interactions, and diversity of family structures were included in the program. Implementation suggestions found through the community advisory board include providing ongoing external facilitation (e.g., coaching, technical assistance), offering a networking platform for both organizations and families, and identifying internal program champions.	The authors outlined lessons learned: engage community stakeholders early; build and foster the continued engagement of community partners throughout the lifespan of the program; include implementers and end-users in the community advisory boards; limit the number of research team members at community advisory board sessions so that community partners are in the vast majority and do not feel overwhelmed; welcome both positive and negative feedback; begin sessions with a summary of key ideas from the previous

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
					session and confirm that the summary truly captures what was discussed and intended.

Note: EDI, equity, diversity, and inclusion; FDPIR, Food Distribution Program on Indian Reservations; SNAP, Supplemental Nutrition Assistance Program; FV, fruits and vegetables; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children; ECE, early childhood education; CACFP, Child and Adult Food Care Program; HEI, healthy eating index; BMI, body mass index

Food Justice or Anti-Racism Training in Nutrition Programs for EDI

This EDI category includes strategies for food justice or anti-racism in nutrition programs using staff (seven studies) or community (four studies) trainings and included eleven sources (24%) (Table 5).[73,76–79,84–86,91,96,109] Trainings were designed to improve nutrition program staff and community members' comprehension about themes such as anti-racism,[73,86] food justice,[84,85,96,109] and other EDI topics (e.g., Social Determinants of Health, intersectionality).[76–79,91] Diverse delivery methods were employed, including virtual training,[73,79] in-person workshops,[84,109] continuing education presentations at summits[85] or conferences,[77,86] facilitated group discussions,[77,96] and training integration within regular staff meetings.[76,78,91] Training duration varied, ranging from concise 15-minute "learning bursts"[73] to a comprehensive six session series (18 hours total) dedicated to EDI instruction,[76] with one program adapting training hours to the group needs (4 to 20 hours of coaching).[84] Another resource highlighted how WIC staff participated in a self-paced 21-day virtual Racial Equity Challenge coupled with group discussions.[77]

In the federal nutrition program context, six sources described anti-racism training or other EDI training in WIC settings.[76–79,86,91] Challenges pertaining to staff capacity to partake in or facilitate training were reported across all WIC-based training initiatives. Three sources integrated EDI training within regular staff meetings[77,78,91], potentially optimizing staff time. Half of the sources described requesting insights from WIC staff or participants to shape the EDI training design: one used focus groups with WIC staff and community members[76]; one used a focus group with WIC staff[86]; and one presented organizational assessment survey results as part of the training.[79] Covered topics encompassed SDOH in three projects.[76,79,86] Other themes incorporated in the trainings were unconscious bias, cultural humility, structural racism, internalized racism, intersectionality, oppression and power dynamics, the outcomes of an EDI organizational assessment, discussing lactation with lesbian, gay, bisexual, transgender queer (LGBTQ+) WIC participants, gender-inclusive language, and anti-racism in the local context.[76,78,79,86,91] When measured, improvements in EDI knowledge surfaced in five studies,[76,78,79,86,91] with two citing enhanced confidence and comfort levels in discussing EDI topics among WIC staff.[79,86] However, one source highlighted staff uncertainty in applying their newfound knowledge in day-to-day activities.[91] Another source highlighted that within the anti-racist training, two specific activities evoked diverse reactions and emotions among WIC staff participants, including defensiveness.[86] Five of these projects were funded by the National WIC Association through their 2-year initiative on Advancing Health Equity to Achieve Diversity & Inclusion (AHEAD) in WIC.[76–79,91]

In the context of local or community nutrition programs, five sources offered insights into the implementation of food justice or anti-racism training.[73,84,85,96,109] Two sources reported using a train-the-trainer approach to show community members and/or SNAP-Ed staff how to facilitate food justice workshops for others in their community.[84,109] Amid the constraints imposed by COVID-19, one source describes how anti-racist training was transitioned into virtual formats, which extended reach.[73] This source also described tailoring anti-racist training for three populations: subgrantee Farm to School staff; ECE staff; and BIPOC youth.[73] One source described discussing food justice issues at a food assistance network summit.[85] Another

source embedded food justice and SDOH facilitated discussions during weekly shared meals between local youth and adults.[96] Overall, how or the extent to which federal or community nutrition program trainings impacted attendee knowledge or behavior was limited due to the training evaluation outcomes chosen (Table 5).

Table 5. Strategies to Advance Equity, Diversity, and Inclusion (EDI) Through Food Justice/Anti-Racism Trainings (n = 11 sources)

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
Ammons et al., 2021[73] The Center for Environmental Farming Systems	The Center for Environmental Farming Systems embedded racial equity training as part of its multi-pronged COVID-19 response. This included developing, tailoring, and providing racial equity training for different audiences. To reach their intended audiences they: (1) adapted current racial equity training to a virtual setting; (2) partnered with an anti-racism organization to develop and offer a virtual five-part series on racial equity within Farm to School programs; (3) developed "Learning Bursts," a virtual gardening, cooking, and racial equity training series for early childhood education providers; and (4) developed and implemented a curriculum with a racial equity lens for	The following audiences in North Carolina benefitted from these strategies: Farm to School programs in 18 school nutrition programs across; 15 community teams of early childcare centers; and youth and adult mentor members of the Food Youth Initiative.	Increased reach of racial equity training.	Due to adapting all training to a virtual modality, racial equity training participation increased from 45 to 75 people per training, 172 Farm to School program participants attended the anti-racism education; 15 childcare teams received racial equity training; and rural, BIPOC youth participating in the Food Youth Initiative received food justice training with a racial equity lens.	COVID-19 showed the importance of flexibility from funders to repurpose grant funds toward COVID-19 responses that included a racial equity component.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	Black, indigenous, and People of Color (BIPOC) and youth living in rural places disseminated virtually.				
Bain et al., 2021[84] Cultivating Powerful Participation Food Justice Facilitation Workshops	SNAP-Education (SNAP-Ed) staff facilitated four-day train the trainer sessions followed by two-day workshops on food justice with support from Cultivating Powerful Participation: Food Justice Facilitation Workshops. Community trainings were co-created with participants representing the diverse needs of the state in areas with the greatest food injustice to help create a sense of identity and belonging.	Around 25 staff attended each workshop with a total of 214 participants who operated in Minnesota communities: 30% were community partners; 40% were organizational partners; and 30% were SNAP-Ed staff. Metro area workshop attendees were reportedly 50% BIPOC and rural area workshop attendees were 20% BIPOC. One workshop took place in an Indigenous community center with 100% of attendees identifying as Indigenous.	Increased understanding of food justice and ways to engage in food justice work.	Directly after the workshop attendees agreed: they had a greater understanding of food justice (100%); they had a greater understanding of the different tools available to engage audiences in effective meetings (93%); they felt more equipped to engage in food justice work (92%); and felt more equipped to lead effective meetings (92%). Nine months after the workshop, attendees agreed: that relationships were important to their learning experience (92%); they felt more connected to others working in food justice in their area (79%); they had new relationships they otherwise would not	Several lessons learned included: the helpfulness of sequencing questions to guide deeper reflections; honing listening as a critical skill; using cues to support experiential learning; leaning on shared agreements during tension; focusing on comfort and belonging; and having community at the core of development and implementation to facilitate engagement.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
				have built (70%); and the relationships they built helped them improve their work (65%).	
Charbonneau et al., 2014[96] Food Empowerment Education and Sustainability Team	The Food Empowerment Education and Sustainability Team used youth led weekly dinner as a power-sharing activity. During the weekly dinner, youth engage in facilitated discussions and peer education related to food justice. The Food Empowerment Education and Sustainability Team also funds youth interns to provide the opportunity to explore food systems projects such as gardening, cooking, journalism, advocacy, and community engagement.	Youth in Delridge and White Center. In Delridge, 46.5% identified as people of color, the majority identified as Asian and African American. 28% of residents live with incomes below 200% of the federal poverty level. In White Center, 53.2% identified as people of color, the majority identified as Asian. 48% of residents live with incomes below 200% of the federal poverty level. More than 90% of the youth that attended the program are immigrants or youth of color.	Empowered youth to improve knowledge of community food systems and engaged in advocacy efforts.	Participants who strongly agreed they had "influence over what their community was like" increased from 27% to 71%, and who strongly agreed they were "a person who made their community better" increased from 9% to 71%. Participating youth advocacy efforts included: becoming members of the Seattle Mayor's Youth Commission, traveling to the state capitol for the Legislative Youth Action Committee, conducting workshops on healthy eating and food systems, speaking at the Chief Sealth International High School World Water Week, and speaking at the W.K.	Engaging mentors that can share power and facilitate youth's goals are critical. Involving youth in all decisions and maintaining flexibility were also important. It was beneficial to set clear expectations. Youth interns were offered stipends which were vital to this population.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
				Kellogg sponsored Food & Community Conference.	
Mello et al., 2017[109] Food Diversity Project	Educational activities focused on justice to improve food security are implemented in neighborhood-based locations by the Food Diversity Project (developed by Our Kitchen Table) and includes capacity-building workshops centered on food justice, health disparities, environmental stewardship, structural racism/inequality, and public policy.	All residents and women and children in Southeast Grand Rapids, Michigan subjected to food insecurity and high levels of environmental toxins.	None reported.	None reported.	None reported.
National WIC Association, 2022[76] Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)	Intentional efforts to train WIC staff in EDI, including building awareness of unconscious bias, improving cultural humility, and understanding SDOH.	Characteristics of Catholic Charities WIC staff were not reported.	Six, three-hour EDI trainings.	No knowledge results reported among WIC staff.	There was a noted need for technical assistance for WIC staff. Several additional challenges were noted: a lack of personnel and staff to complete activities; COVID-19; time constraints; lack of community resources; and an inability to

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
					follow-up with participants to determine if they utilized the referrals.
National WIC Association, 2022[77] WIC	Intentional efforts to train WIC staff on EDI concepts and strategies to support the delivery of culturally and linguistically preferred services.	Characteristics of DePaul Community Health Center WIC staff were not reported.	EDI training offerings at a State/Local Agency conference.	No knowledge results reported among WIC staff.	Challenges included limited time, funding, sustainability, a lack of bilingual staff to service Hispanic or Latino; and occurring during the COVID-19 pandemic and Hurricane Ida.
National WIC Association, 2022[91] WIC	Intentional efforts to provide WIC staff with EDI training.	100% of Josephine County WIC staff identified as White, with 43% identifying as Hispanic or Latino and 57% as non-Hispanic or Latino.	Expanded EDI knowledge among WIC staff.	Ten WIC staff received on-going EDI training. Participants reported feeling more familiar with EDI concepts after the trainings and some felt able to use what was learned in their current role.	Staff reported difficulty with translating EDI trainings to daily work and provided several suggestions to improve the training: decreasing time; making it more interactive; providing more supplemental materials; and encouraging more in-depth discussions.
National WIC Association, 2022[79]	WIC staff were provided EDI training using the Equity in Action:	Macomb County WIC staff (n=30) who identified as 63% White,	Expanded WIC staff knowledge of EDI concepts.	23 WIC staff participated in EDI training. Post-training reflections	The organizational assessment process was not user-friendly

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
WIC	Advancing Justice Together curriculum, including 1) conditions affecting health in the places where people live, learn, work, and play; 2) racism, social identities, and intersectionality; 3) oppression and understanding power; and 4) discussion of the organizational assessment.	26% Black, and 11% Asian.		indicated that many staff did not think about how discrimination impacts health. 50% of staff felt comfortable discussing health equity, discrimination, and racism in the workplace. Staff noted several ways they would utilize the training concepts: recognize their White privilege; become more aware of intersectionality and the relationship to identity; create a safe place; and educate White people about racism and oppression of people identifying as not White. Some staff felt the EDI training was not inclusive of other racial and ethnic groups.	and staff readiness for EDI training varied. Several added challenges included: a slow project start; competing staff priorities such as a transition to WIC Electronic Benefits Transfer (EBT) cards; nationwide formula shortage; and COVID-19 supply chain issues.
National WIC Association, 2022[78] WIC	WIC staff received EDI training related to culturally preferred and gender inclusive lactation support for Lesbian, Gay,	Morrisania WIC with 23 staff members who identified as 59% Hispanic, 23% African	Expanded knowledge of EDI among WIC staff.	19 WIC staff reflected on the EDI training and there was agreement that the information was valuable and relevant to their role.	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	Bisexual, Transgender, and Queer WIC participants.	American, 9% Asian, and 9% White.		83% reported the training increased their familiarity with equity, diversity, and implicit bias and reflected on how their beliefs, values, and privilege impacted work decisions. 71% mentioned it increased familiarity with microaggressions and 73% thought it helped to increase familiarity with anti-racism.	
Santoro et al., 2022[86] WIC	A foundational, three-hour antiracism training was developed with Philadelphia WIC staff feedback and included components of: how their identity shapes worldview; definitions and concepts in the context of WIC, Philadelphia, and perinatal health data; workplace scenarios; a model for healing, repair, and disruption; and a CARE card action tool for staff	42 Philadelphia WIC professionals, identifying as: 55% White; 32% Black or African American; 9% Asian; 4% other. Most (91%) were female, and 74% had no prior antiracism training. 40% had worked at WIC for less than one year, 30% between one and two years, 12% between three and five years, 9% for six and ten years, and 9% greater than ten years.	Increased understanding of racism and skills to address bias so WIC staff could better serve Black families participating in WIC.	Immediately after the training, WIC staff demonstrated increased awareness of the role of racism in the healthcare system and confidence identifying and addressing interactions that perpetuate racism (both slightly decreased six months after the training).	The workplace scenario and debrief elicited a wide range of responses and feelings among trainees, including defensiveness. Trainees pointed out the competing priorities of accommodating challenges that participants face while still meeting agency expectations to follow protocols and rules.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	when caring for WIC participants.				
Santilli et al., 2022[85] Greater New Haven Coordinated Food Assistance Network	The Coordinated Food Assistance Network incorporated all six principles of Collaborating for Equity and Justice (addresses injustice and structural racism; equal power distribution in agenda setting; community organizing and leadership among those with lived experience; focus on policy, systems, and environment changes and emergency responses; and neutral leadership) in supporting food systems changes and COVID-19 responses. The program also implemented a food justice summit for members of the network.	New Haven, Connecticut.	None reported.	None reported.	None reported.

Note: EDI, equity, diversity, and inclusion; BIPOC, Black, Indigenous, and People of Color; SNAP-Ed, Supplemental Nutrition Assistance Program Education; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children; EBT, electronic benefits transfer

Improving Access to Federal Nutrition Programs for EDI

This EDI category includes strategies to improve the accessibility of federal nutrition programs among eligible participants, to improve reach beyond standard program practices and included eight sources (17%) (Table 6).[17,75,76,78,91,101,103,114] These strategies focused on WIC,[76,78,91] SNAP,[17,101,103,114] and school meals.[75,103] For example, efforts to expand the reach of WIC included procuring a van to allow for rural mobile services,[91] expanded reach of breastfeeding peer counselors through medical organizations,[78] and the development of a new screening tool for social determinants of health to aid in appropriate referrals.[76] Slightly more than 60 WIC participants living in rural places received care from the mobile services; however, challenges to this model included supply chain issues from COVID-19 and inclement weather.[78] Likewise, access to a breastfeeding counselor equipped with culturally preferred information increased engagement among WIC participants, although was also challenged by COVID-19 given the focus on medical settings.[78] Screening increased among WIC participants for social determinants of health; however, a need for technical assistance, limited internal and community resources, COVID-19, and lacking a way to follow up with participants were noted challenges.[76] Efforts to improve access to SNAP included a state-wide, multi-pronged effort to achieve a 100% SNAP participation rate in Oregon,[101] in addition to providing a workshop to build capacity among rural producers to accept SNAP (that resulted in one rural producer becoming SNAP authorized with resources noted as a challenge),[114] establishing a SNAP-authorized market at a WIC clinic,[17] and improving SNAP-authorization among New York City (NYC) organizations with social justice missions (that helped to increase the reach of SNAP among historically marginalized populations).[103] Equitable distribution of school meals during COVID-19[75] or in general[103] was also a focus, and was reported to advance equity and increase the number of students utilizing school meal services/programs, respectively.

Table 6. Strategies to Improve Access to Federal Nutrition Program Services to Advance Equity, Diversity, and Inclusion (EDI) (n = 8 sources)

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
Elkaramany et al., 2023[101] Supplemental Nutrition Assistance Program (SNAP)	Oregon implemented overlapping and multi-pronged strategies to reach 100% SNAP participation. As an example of collaborative governance, the Oregon Hunger Task Force was established to promote community awareness, compile research, develop proposals for government action, and conduct outreach to expand participation in federal nutrition programs and the Partners for a Hunger-Free Oregon translated recommendations into actions. In addition, the Oregon Department of Human Services contracted ten partners to design and implement SNAP outreach activities among populations that often have difficulty enrolling in SNAP such as	SNAP participants in Oregon. In 2000, 8% of Oregon's population was described as was Hispanic, 90.7% of Oregon residents were US-born, and 8.5% were foreign born persons. In 2012, there were 815,221 participants enrolled in SNAP.	None reported.	None reported.	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	people identifying as Hispanic and university students. A total of 54,000 individuals were connected to SNAP. The United States Department of Agriculture (USDA) provided free wireless electronic benefits transfer (EBT) equipment to farmers' markets through the SNAP EBT Equipment Program to enable SNAP benefit utilization at farmers' markets. Double Up Food Bucks were implemented in 53 farmers' markers across 16 counties and with every dollar spent using SNAP benefits, participants also received an additional dollar. Oregon assisted eligible participants in taking advantage of the medical expense deductions by providing training and information to interested SNAP				

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	households and caseworkers.				
Franck et al., 2023[114] SNAP	A two-hour workshop to reduce rural food access inequities was conducted with rural producers regarding the advantages of allowing SNAP payments after discovering that none of the two farmers' markets in the county accepted SNAP. Practical guidance and hands-on support were also provided to aid producers in navigating the EBT application process and to integrate and promote SNAP usage at the markets.	Six producers and two farmers' market managers participated in the training.	Increased number of SNAP retailers at farmers' markets.	One rural producer became authorized to accept SNAP benefits, a process that took one year.	Training attendees were concerned with the amount of time and paperwork to become certified as a SNAP retailer. Additional barriers included navigating the application system and minimal support with the process.
Gamblin et al., 2019[17] Special Supplemental Nutrition Program for Women, Infants,	A WIC clinic farmers' market was established so participants could use SNAP match dollars in a convenient way that eliminated the need to secure transportation and spend time traveling to another market.	Mary's WIC Center participants located in Washington, DC. Most participants were described as people living in households with low-income and people identifying as not White.	None reported.	None reported.	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
and Children (WIC)					
Johnson et al., 2019[103] Good Food Purchasing Program, NYC farmers' markets, community supported agriculture, Fresh Food Box, SchoolFood	To expand the accessibility of fresh, local food in areas of lower wealth and communities of color, many existing programs with social justice missions (farmers' markets, Community Supported Agriculture (CSA), Fresh Food Box programs) started accepting SNAP benefits.	New York City (NYC) community members across five boroughs.	Expanded reach of local food procurement opportunities through accepting SNAP and other federal benefits.	In 2018, 120 of 141 farmers' markets accepted SNAP. In 2019, 143 farmers' markets and farm stands were registered to accept WIC and Senior Farmers' Market Nutrition Program benefits. In 2010, the Council's FoodWorks called for all Greenmarket farmers markets to have EBT, and for one season a CSA operated out of City Hall. The Fresh Food Box program operated 13 distribution sites in 4 boroughs, many of which accepted SNAP and Health Bucks.	None reported.
	NYC schools improved food access for all by providing free school lunch, school food pantries, and summer meal programs.	Children in the NYC school system. NYC was described as having about 1.09 million food insecure people with a food insecurity (12%) rate higher than the national average and	Increased food access and school lunch participation rates.	After implementing universal school lunch, an average of 26,000 more students ate lunch daily. In high schools (generally lowest participation), 16.1% more students had school lunch. Across all	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
		21% higher than the state of New York.		schools, participation increased by 5% (participation was 59% the year prior to implementation). Also, school food pantries expanded from ten to 15 schools and summer meal program participation was reportedly growing, with an estimated seven million meals served each summer.	
McLoughlin et al., 2020[75] School nutrition program	School districts' COVID-19 response aimed to provide food for students equitably. Four urban school districts in the United States (U.S.) were evaluated regarding emergency meal distribution through the Getting to Equity framework.	Students across four urban school districts: Chicago Public Schools (76% free and reduced lunch rate); Houston Independent School District (75% free and reduced lunch rate); Los Angeles Unified School District (80% free and reduced lunch rate); and NYC Department of Education (73% free and reduced lunch rate).	The emergency distribution of school meals based on the Getting to Equity framework, which evaluates four domains: increase healthy options; reduce deterrents; improve social and economic resources; and build on community capacity.	Districts increased healthy options by strategically placing central collection points and operating more sites. One district distributed 30-pound food boxes. Another provided grab-and-go breakfasts, lunches, and dinner. All schools offered free meals. To reduce deterrents, districts provided grab-and-go meal locators showing openings and closings, links to partner sites, and meal options for	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
				special diets. Multilingual information was provided and portrayed images to promote equity and empowerment. To build on community capacity, districts partnered with community organizations for distributing food. To increase social and economic resources, the hours of operation were clearly communicated, one school offered weekend hours, and one school provided afternoon hours for adults.	
National WIC Association, 2022[91] WIC	Josephine County WIC purchased and operated a van to expand mobile WIC services at offsite locations. Partnerships such as hospitals and health centers, cultural organizations, schools, housing agencies, libraries, food banks and pantries, community clinics, farmers' markets, and	Rural participants (e.g., 55% living in unincorporated rural areas of the county) served by Josephine County WIC, described as: White (91%, of which 16% were of Hispanic or Latino ethnicity); American Indian or Alaska Native (5%); more than one race (3%);	Expanded community partnerships for mobile WIC services and increased WIC participant reach.	WIC staff expanded community partnerships through 18 events, 13 meetings, and one coalition. Josephine County WIC staff increased WIC enrollment through six locations and three off-site locations. 62 people received WIC services at offsite locations.	Van procurement was delayed due to COVID-19 supply chain issues. Inclement weather also made it challenging to take the van out.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	other nutrition programs were created to expand reach offsite.	Pacific Islander (1%); Black or African American (<1%); and Asian (<1%).			
National WIC Association, 2022[78] WIC	Intentional efforts to expand community reach of WIC breastfeeding peer counselors through Morrisania/Gotham Health Pediatric Department, Lincoln Hospital, and local pharmacies.	Morrisania WIC with 23 staff members who identified as 59% Hispanic, 23% African American, 9% Asian, and 9% White.	Breastfeeding peer counselors' expanded outreach and knowledge of culturally preferred lactation information.	The number of patient contacts with breastfeeding peer counselors increased by 42%. Breastfeeding peer counselors provided 177 pregnant and birthing individuals culturally preferred lactation information (October 2021–February 2022).	The program paused presence at the hospital because of COVID-19.
National WIC Association, 2022[76] WIC	Intentional efforts to develop and implement Social Determinants of Health (SDOH) screening tool to refer WIC participants to additional social services.	Catholic Charities WIC of Western New York serves Erie, Niagara, and Chautauqua counties, including Buffalo, NY. The racial makeup of Buffalo, NY was described as 47% White; 37% Black or African American; 6% Other races/ethnicities; 6% Asian; 4% two or more races/ethnicities; 0.48% American Indian or Alaska Native; and	Increased social service referrals.	Referrals increased from 15,027 (July 2021–September 2021) to 27,858 (October 2021–February 2022) and mainly included referrals to healthcare providers, dentists, and emergency food resources.	There was a noted need for technical assistance for WIC staff. Several additional challenges were noted: a lack of personnel and staff to complete activities; COVID-19; time constraints; lack of community resources; and an inability to follow-up with participants to

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
		0.05% Native Hawaiian or Pacific Islander.			determine if they utilized the referrals.

Note: EDI, equity, diversity, and inclusion; SNAP, Supplemental Nutrition Assistance Program; USDA, United States Department of Agriculture; EBT, electronic benefits transfer; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children; CSA, community supported agriculture; NYC, New York City; U.S., United States; SDOH, Social Determinants of Health

Nutrition Program Staff Hiring or Development for EDI

This EDI category includes strategies to hire program staff or to develop the nutrition program workforce in a way that better reflects and serves priority populations and included six sources (13%) (Table 7).[77,78,90,95,102,113] More than half of these sources described workforce development efforts pertaining to WIC.[77,78,90,113] Two of the WIC-related efforts involved building workforce capacity to support the careers of under-represented breastfeeding peer counselors and found improvements to staff confidence regarding career progression.[78,90] One source noted challenges including resources, the COVID-19 pandemic, navigating accreditation systems, and a need for long-term social, financial, and workplace support.[90] Additional examples included hiring a bilingual health worker to improve WIC participants' accessibility to an incentive program[113] and hiring a "WIC navigator" to provide transportation services and increase WIC participants' use of social service programs.[77] The transportation support was described to improve social service screenings and opportunities for recruitment; although, this was challenged by a lack of resources and bilingual staff, COVID-19, and Hurricane Ida.[77] Hosting bilingual community representatives at food bank locations[95] and hiring a market coordinator with lived experiences to improve SNAP participants' utilization[102] were other examples. He & Morales (2022) described challenges such as the time to establish relationships and tensions, however SNAP sales were described to increase by nearly U.S. 3,900 dollars compared to the prior year without a SNAP market coordinator with knowledge of local needs.[102]

Table 7. Strategies to Hire or Develop Staff to Better Serve Priority Populations and Advance Equity, Diversity, and Inclusion (EDI) (n = 6 sources)

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
Baldridge et al., 2021[95] Food banks and food pantries	Bilingual staff who are representative of the community were available at food banks to help increase cross-cultural options.	None reported.	None reported.	None reported.	None reported.
Calo et al., 2023[113] Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)	A bilingual community health worker staffed a newly established farm stand near a downtown medical campus area to improve availability to redeem the VeggieRx vouchers prescribed by Penn State St. Joseph's clinical staff and make it more accessible to families speaking Spanish.	Residents enrolled in WIC in two communities where a high proportion of the population was described as Hispanic and between 26% to 39% of the population lived below the federal poverty level.	None reported.	None reported.	None reported.
He and Morales, 2022[102] Supplemental Nutrition Assistance Program (SNAP)	A Market Access Coordinator with lived experience was hired to improve SNAP participants' farmers' market awareness, knowledge, and feelings of belonging among people not identifying as White with lower incomes. Also,	SNAP participants shopping at the Brown Deer farmers' market, which was described as a town with a high rate of residents eligible for government incentives.	Expanded social embeddedness and SNAP sales at the farmers' market.	The coordinator's outreach and engagement efforts were considered examples of social embeddedness (e.g., a local high school principal, a Village of Brown Deer Committee, the Milwaukee Farmers Market Coalition). SNAP sales at the farmers	Time was required to establish relationships. Also, the commitment to social embeddedness complicated implementation; for example, tensions between the coordinator and the

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	the coordinator led a marketing campaign designed for inclusivity (marketing material images were meant to signify the recognition of a moral economy), conducted outreach, and visited daycare centers to teach about nutrition.			market were estimated to increase to $4,397.75 from $512 the previous year.	administration arose which might have been because of gaps in lived experiences and limited capacity for data entry.
National WIC Association, 2022[77] WIC	Hired a WIC navigator to provide transportation and support for WIC participants to access services and meet requirements.	WIC participants served by DePaul Community Health Center. Located in an area described as: Black or African American (59%); White (33%); Asian (3%); people who report two or more races (3%); and American Indian or Alaska Native (<1%).	Expanded social services screening and referrals among WIC participants.	About 93-99% of all WIC participants were screened for social services (October 2021–February 2022); around 70 utilized these services. The WIC navigator allowed for participant recruitment in non-traditional settings and outside of normal clinic hours.	Challenges included limited time, funding, sustainability, a lack of bilingual staff to service Hispanic or Latino; and occurring during the COVID-19 pandemic and Hurricane Ida.
National WIC Association, 2022[90] WIC	Intentional workforce development efforts to create a career ladder for Black, Indigenous, and People of Color (BIPOC) breastfeeding peer counselors using personalized career	The intervention by the Hennepin County WIC program included seven breastfeeding peer counselors who identified as African American (n=4), Asian (n=1), and Hispanic (n=2).	Career progression/support.	Compared to peer counselors who did not complete the training, those involved in the training had a stronger sense of support from WIC and a stronger feeling of	Several challenges included: minimal time during the project; difficulty making connections with new hospitals and clinics due to the COVID-19 pandemic; and

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	advancement plans, ten hours of one-on-one counseling, and five group sessions.			personal control of their professional future.	navigating the International Board of Lactation Consultant Examiners system. Additionally, most peer counselors indicated need for more social and financial support, continuing education, and counseling outside the program.
National WIC Association, 2022[78] WIC	Provision of eight training sessions (totaling 16 hours) by Morrisania WIC for BIPOC and other underrepresented individuals in the/pursing a breastfeeding profession.	Training attendees were in California, Mississippi, Washington DC, Alabama, Texas, and New York and identified as: 74% Black or African American; 4% Asian; 20% Hispanic or Latino; and 6% other. 5% also identified as Lesbian, Gay, Bisexual, Transgender, and/or Queer.	Expanded breastfeeding training opportunities for underrepresented individuals.	70 people registered for the virtual continuing education sessions on lactation. After the training, participants felt more confident in pursuing the lactation profession, and thought the program would be beneficial to other underrepresented populations looking to advance skills in lactation support.	None reported.

Note: EDI, equity, diversity, and inclusion; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children; SNAP, Supplemental Nutrition Assistance Program; BIPOC, Black, Indigenous, and People of Color

Enhanced Nutrition Program Partnerships for EDI

This EDI category includes strategies used to expand nutrition program partnerships to better meet the needs of priority populations and included five sources (11%) (Table 8).[76,77,80,111,113] Most of these efforts were centered on local WIC efforts,[76,77,80,113] with expanded WIC partnerships including healthcare organizations,[76,77,80] faith-based organizations,[76,77,113] food system representatives[77,113], housing services,[77,113] non-profit or advocacy organizations,[76,113] school/childcare facilities,[76,77] Family Health Services,[113] and tribal representatives.[80] Three of these sources provided more information about outcomes or lessons learned associated with these partnership avenues.[76,77,80] Outcomes focused on the reach of outreach efforts[76,77] or awareness of WIC services,[80] while challenges to expanding partnerships included the COVID-19 pandemic,[76,77,80] limited resources,[76,77] a need for technical assistance,[76] a need for bilingual staff,[77] Hurricane Ida,[77] and trust rebuilding after a former WIC site located on a reservation had closed.[80] In addition to the WIC partnership efforts, Sands et al. (2018) described a strategy to evaluate opportunities to re-establish a food policy council in a Latino-majority city after it had failed due to various misalignments, including council membership not reflecting the priority population.[111] Based on recommendations from an external party, the policy council focused on several efforts to rebuild partnerships and re-center community voices; however, were also challenged by similar circumstances (noted above)[76,77,80] and a lack of a shared vision among potential partners.[111]

Table 8. Strategies to Enhance Nutrition Program Partnerships to Advance Equity, Diversity, and Inclusion (EDI) (n = 5 sources)

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
Calo et al., 2023[113] Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)	Partnered with a farmer and local community center which is home to two Hispanic churches, two non-profit organizations, an overnight shelter, and a community garden and along a popular bus route to host a new farmers' market to expand fruit and vegetable (FV) access for Hispanic families. This new farmers' market is the only one in the city that accepts Farmers' Market Nutrition Program (FMNP) vouchers provided to both WIC and older participants.	Residents enrolled in WIC in two communities where a high proportion of the population was described as Hispanic and between 26% to 39% of the population lived below the federal poverty level.	None reported.	None reported.	None reported.
	A partnership with Family Health Services was initiated to provide bilingual breastfeeding support (one-on-one and group education among pregnant and postpartum people) using a community health worker model. A	Residents enrolled in WIC in two communities where a high proportion of the population was described as Hispanic and between 26% to 39% of the population lived below the federal poverty level.	None reported.	None reported.	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	culturally preferred marketing campaign about breastfeeding support across local healthcare organizations and the community was also disseminated via media (e.g., billboards) and public transit.				
National WIC Association, 2022[76] WIC	Intentional efforts to expand WIC community networks with hospital and health systems, cultural and advocacy organizations, faith-based institutions, schools, and childcare facilities to increase awareness of WIC services.	Catholic Charities WIC of Western New York serves Erie, Niagara, and Chautauqua counties, including Buffalo, NY. The racial makeup of Buffalo, NY was described as 47% White; 37% Black or African American; 6% Other races/ethnicities; 6% Asian; 4% two or more races/ethnicities; 0.48% American Indian or Alaska Native; and 0.05% Native Hawaiian or Pacific Islander.	Expanded community partnerships.	387 community-based providers were reached by nine presentations on Social Determinants of Health (SDOH).	There was a noted need for technical assistance for WIC staff. Several additional challenges were noted: a lack of personnel and staff to complete activities; COVID-19; time constraints; lack of community resources; and an inability to follow-up with participants to determine if they utilized the referrals.
National WIC Association, 2022[77]	Intentional efforts to expand WIC community partnerships with hospitals, health care	WIC participants at DePaul Community Health Center. Located in an area described as:	Expanded community partnerships.	Community outreach events were expanded to 26 locations.	Challenges included limited time, funding, sustainability, a lack of bilingual staff to service

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
WIC	systems, housing agencies, food banks, faith-based institutions, schools, and childcare centers.	Black or African American (59%); White (33%); Asian (3%); people who report two or more races (3%); and American Indian or Alaska Native (<1%).			Hispanic or Latino; and occurring during the COVID-19 pandemic and Hurricane Ida.
National WIC Association, 2022[80] WIC	Tulare County WIC established the Tule River-WIC task force including healthcare and tribal partners and held weekly meetings, outreach activities, and EDI trainings to build relationships and work toward expanding outreach and community partnerships for WIC referrals.	31% of Tulare County task force participants were currently enrolled in WIC, 47% were previously enrolled in WIC, and 22% were never enrolled in WIC. Most were food secure.	Established task force to increase awareness of WIC services.	80% of the task force participants reported the task force increased their awareness of WIC services.	The project goal was changed (from creating a WIC satellite site) due to the COVID-19 pandemic. The task force needed to rebuild trust with tribal partners, as a previous reservation WIC site had closed. It was important to keep in mind multiple cultures throughout the task force.
Sands et al., 2018[111] Holyoke Food and Fitness Policy Council	The Holyoke Food & Fitness Policy Council was established, but was dissolved due to issues of trust, transparency, and misaligned values and priorities due to leadership not reflecting community	City of Holyoke, Massachusetts, with a Latino-majority population of 40,280.	Rebuilt partnerships to become effective in providing food justice training and improving access to culturally preferred, healthy foods.	Nuestra Comida training included external advocacy and leadership training; project planning and evaluation; food systems challenges and community solutions; advocacy and school food; team building,	Challenges to sustainability included partner organizations' lack of capacity, staffing, long-term funding, and knowledge. A lack of a shared language or

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	members' demographics. A third party evaluated the challenges to create Nuestra Comida, with a majority Latino leadership, that was managed and housed within a community-based organization with a reoriented scope to prioritize community members' goals (a school food change, scaling up of markets for culturally preferred crops, family health, and youth pathways to jobs and higher education).			organizing, and relationship building; facilitation, communication, leadership; history matters; and guest speakers on health and nutrition. Community members were able to successfully develop partnerships aligned with their goals, including training 100 beginning farmers to synchronize existing farmers' markets and created a mobile market.	vision regarding successful engagement was also a barrier to partnerships. Most people in policy and upper-level management positions in Holyoke were White, while most residents who rely on support are Latino and people of color. A success was efforts to re-center the voices of community members in the development of Holyoke Food & Fitness Policy Council.

Note: EDI, equity, diversity, and inclusion; FV, fruits and vegetables; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children; FMNP, Farmers' Market Nutrition Program; SDOH, Social Determinants of Health

Improved Food Accessibility for EDI

This EDI category includes strategies used to improve the availability, affordability, convenience, promotion, or quality of healthy and culturally preferred foods[120] among priority populations and included five sources (11%) (Table 9).[17,82,108,110,115] Most often, these types of strategies focused on removing local, salient barriers to healthy food access[108,115] or intentional strategies to improve the affordability of produce and other culturally preferred items[82,110] among priority populations. For example, a tailored food production and delivery program helped families living in low income, low healthy food access areas to come together (e.g., by alleviating transport or childcare barriers and providing compensation) to create healthy meals for delivery to community residents. Another city-wide program in Baltimore initiated a virtual supermarket option in areas without easy access to supermarkets, which were also areas with majority Black residents.[108] These efforts were associated with higher engagement, capacity, and program improvement[115] and improved perceptions of the food environment.[108] However, challenges such as external stressors,[115] the user experience,[108] accepted forms of payment,[108] and food quality concerns[108] were noted and may inhibit the long-term success or sustainability of these EDI efforts[108,115] and may further be ineffective at improving dietary quality disparities.[108] Additionally, the two program efforts that aimed to improve resources to access local, nutritious foods[82,110] intentionally provided monetary vouchers to populations who experience heightened disparities, including pregnant WIC participants[82] and American Indian elders of the Standing Rock Nation.[110] Ridberg et al. (2022) did not find meaningful improvements to food security or FV intake associated with the increased voucher amount; however, this strategy was implemented during the COVID-19 pandemic which influenced shopping practices and household resources.[82] Ruelle et al. (2011) associated the vouchers with improved local produce options which helped to bolster local economies.[110] Last, Gamblin et al. (2019), described engaging local food producers on the Wind River Indian Reservation to build capacity for expanding access to Indigenous foods in local communities.[17]

Table 9. Strategies to Improve Food Accessibility to Advance Equity, Diversity, and Inclusion (EDI) (n = 5 sources)

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
Gamblin et al., 2019[17] Program for produce growers	20 reservation producers were engaged to help develop their businesses to produce Indigenous foods through grant funding.	The Wind River Indian Reservation in Wyoming.	None reported.	None reported.	None reported.
Katre et al., 2023[115] Food Forward	Food Forward sought to engage the families with an increased risk for food insecurity in the production of home delivered, partially prepared meal kits to Central Hillside's residents with low-income once a week to help alleviate stress around food, including lack of knowledge of cooking and nutrition, financial stress, and transportation issues. Free childcare, transportation to the production site, and compensation was provided to families very actively involved in the production of the meals.	25 families with low-income received meals and seven families were very actively engaged in the meal production.	Increased fruit and vegetable (FV) access and knowledge of cooking skills, and participant engagement with intervention.	Some participants reported developing new cooking skills, which they would use even on long days after work. A total of seven families were very actively engaged in the production of the meals, and four families consistently participated. Reducing barriers to participation (e.g., lack of childcare, transportation) led to greater engagement of some participants at high risk for food insecurity. Still, three of the seven participants were not able to participate, citing mental health and time constraints as the main	Allowing for different levels of engagement, was effective in maintaining participation.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	Active consumers of Food Forward provided feedback specific to the meal for the week.			reasons for inconsistent participation. This direct line of communication between community members and Food Forward staff resulted in improvements such as adding labels to jars, moving delivery times to earlier in the day and providing single-serving sizes on the recipe cards. Participants who actively provided feedback had the highest retention rate.	
Lagisetty et al., 2017[108] Virtual Shopping Program	A Virtual Supermarket Program (i.e., online grocery ordering) to improve access to healthy foods among neighborhoods not served by grocery stores or supermarkets was implemented by the Baltimore City Health Department (March 2010 to July 2016).	Residents of Baltimore City, Maryland, described as an area with a high proportion of African American residents living in neighborhoods with low income with limited access to healthy food. 93 people completed a survey and 14 collaborators (health department staff, grocers, community partners, and customers)	Partner preferences and program barriers.	Program partners believed the Virtual Supermarket made it easier to eat healthy (93%) and felt it was due to more healthy food availability (78%) or reduced need for transportation (65%). Most were also happy with the ordering (86%) and pick up (78%) process and felt an improved sense of community (80%). Fewer respondents reported	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
		participated in interviews.		buying more fruits (47%) or vegetables (50%). Ideas to sustain the program included: accepting Supplemental Nutrition Assistance Program (SNAP) online; improving efficiency of the grocery delivery; improved food quality and delivery storage methods; making the store circular more user-friendly; and increasing discounts.	
Ridberg et al., 2022[82] Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)	Pregnant participants of WIC were provided with a $40 FV voucher each month for nine months.	Across intervention (n=304) and comparison (n=466) groups, participants were 55% Latina, 22% Asian or Pacific Islander, and 12% Black.	Reduced food insecurity and increased FV consumption.	The FV voucher was not associated with meaningful improvements to food security or FV intake among pregnant WIC participants.	The study was challenged by the ongoing COVID-19 pandemic, which likely impacted (from conversations with WIC staff) participants' use of farmers' markets and household resources overall.
Ruelle, Morreale, and Kassam, 2011[110]	Standing Rock Nation elders were provided with $50 worth of vouchers via a Senior Farmers' Market Nutrition Program to help	36 vendors at four farmers' markets and four roadside stands were authorized to accept vouchers in	Increased availability of culturally preferred produce and	Markets offered cultivated FVs and herbs; at least 36% of voucher redemptions were for non-cultivated plants. The	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
Senior Farmers' Market Nutrition Program	obtain culturally preferred foods and contribute to the growth of reservation farmers' markets.	exchange for fresh local produce. The program reached 347 Standing Rock Nation residents including 194 households (approximately 71% of eligible residents).	improved local economy.	program introduced a small amount of money into the local economy and provided 14 Standing Rock residents and their families with supplemental income from gardening and gathering.	

Note: EDI, equity, diversity, and inclusion; FV, fruits and vegetables; SNAP, Supplemental Nutrition Assistance Program; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children

Policy Changes for EDI

This EDI category includes policy strategies to improve nutrition-specific or nutrition-sensitive programs framed as a mechanism to mitigate food and nutrition disparities and included four sources (9%) (Table 10).[74,83,89,103] Two sources described national policies that were enacted to improve federal nutrition programs,[83,89] including an expansion of SNAP benefits during the COVID-19 pandemic to aid those disproportionately affected (e.g., people with disabilities). Wheaton & Kwon (2022) estimated these efforts helped to reduce the number of households experiencing poverty, especially Black, non-Hispanic SNAP participating households.[89] Poverty reductions among priority populations were an estimated outcome among the several states that adopted emergency allotments during the COVID-19 pandemic, especially among households with children and among Black, non-Hispanic SNAP participants; however, these policies were estimated to have a small effect on poverty among non-Hispanic Asian Americans and Pacific Islanders.[89] Another national policy (with varying implementation by state), the EITC, was evaluated to understand maternal and child health impacts among families with lower income.[74] While the EITC was found beneficial across states, those with more generous EITCs were associated with the largest reductions in poor maternal and child health outcomes, especially among mothers who were Black.[74] Finally, city-level policy was also framed as advancing EDI, specifically within NYC where local efforts helped to modify tax and city planning policies to expand the number of healthy food retail spaces among underserved NYC neighborhoods.[103] These efforts were attributed to hundreds of thousands of added square footage for new food retail space in addition to new and retained jobs.[103]

Table 10. Nutrition or Nutrition-Associated Policy Strategies to Advance Equity, Diversity, and Inclusion (EDI) (n = 4 sources)

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
Johnson et al., 2019[103] Food Retail Expansion to Support Health program	The Food Retail Expansion to Support Health program by the New York City (NYC) council and the Department of City planning was designed to expand healthy food access in neighborhoods with limited fresh food availability. The program included land tax abatement, sales tax exemption, mortgage recording tax deferral, and additional building/ expansion rights. The Expand the Food Retail Expansion to Support Health Taskforce was also started to address issues faced by supermarket retailers.	14 completed projects including full-service grocery stores in neighborhoods underserved by healthy food in NYC.	Expanded square footage of grocery store retail space, more job opportunities, and improved NYC investments.	Efforts represented an estimated NYC investment of $140 million dollars and resulted in approximately 884,000 square feet of new or renovated grocery store space, more than 600 retained jobs, and over 1,800 new jobs created.	None reported.
Komro et al., 2019[74] Earned Income Tax Credit (EITC) laws	An examination of the impact of United States (U.S.) EITC laws on mitigating disparate maternal and child health outcomes. EITC laws aim	U.S. infants and mothers.	Improved birth outcomes (maternal birth weight gains, low birth weight, and gestation weeks) among	Any level of state EITC was associated with improved birth outcomes. Largest effects were seen among states with more generous EITCs. Regarding	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	to provide income to low-to-moderate wealth families using a tax break.		states with more generous EITCs.	statistically significant differences by race/ethnicity, Black mothers had higher birth weights compared to White mothers in states providing a high EITC with no refund. Black mothers were found to have a larger beneficial effect for low birth weight and gestation weeks compared to White mothers in states with low EITC and no refund. Black mothers had more gestation weeks compared to White mothers in states with low EITC with refund and states with high EITC with a refund. Additionally, Hispanic mothers had a larger beneficial effect in states with low EITC and no refund compared to non-Hispanic mothers. Hispanic mothers had more gestation weeks as compared to non-Hispanic	

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
				mothers in states with high EITC and no refund.	
Robert Wood Johnson Foundation, 2021[83] Supplemental Nutrition Assistance Program (SNAP)	The federal COVID-19 SNAP response efforts included increasing funding to SNAP for a temporary 15% benefit increase, starting Pandemic-electronic benefits transfer (EBT), expanding online SNAP options, and updating the Thrifty Food Plan for an additional $36 per month, which were described as efforts likely supporting those who lost jobs, with disabilities, and those facing multiple burdens.	SNAP participants in U.S.	None reported.	None reported.	None reported.
Wheaton and Kwon, 2022[89] SNAP	National efforts to reduce poverty among SNAP participants, including 1) the re-evaluated Thrifty Food Plan that increased the maximum SNAP benefit amount by 21%; and 2) emergency allotments, a temporary measure during the	SNAP participants.	Reduced poverty in the fourth quarter of 2021.	Report results estimated nearly 2.3 million people were alleviated from poverty and the number of children in poverty was reduced by 8.6% due to increased SNAP benefits. Black, non-Hispanic SNAP participants had the highest estimated	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	COVID-19 pandemic that provided SNAP participants in Arkansas, Florida, Idaho, Missouri, Montana, Nebraska, North Dakota, and South Dakota with the maximum SNAP benefit based on the family size.			reduction in poverty (6.9%) among the race and ethnicity groups examined. About 4.2 million people were estimated to be alleviated from poverty in states with emergency allotments and the number of children below poverty was reduced by 14%. Black, non-Hispanic people had the highest estimated reduction in poverty (13.0%). More White, non-Hispanic people were estimated to be removed from poverty than in any other race and ethnicity group and emergency allotments were estimated to have the smallest effect on non-Hispanic Asian Americans and Pacific Islanders.	

Note: EDI, equity, diversity, and inclusion; NYC New York City; EITC, Earned Income Tax Credit; U.S., United States; SNAP, Supplemental Nutrition Assistance Program; EBT, electronic benefits transfer

Organizational Change for EDI

This EDI category includes changes to organizational procedures, policies, or practices to better meet the needs of nutrition program priority populations they serve and included three sources (7%) (Table 11).[79,99,117] These sources differed in focus and were relevant to federally funded programs[79,99] and local early childcare education settings.[117] For example, one organization that supports Gus Schumacher Nutrition Incentive Program (GusNIP) grantees to implement evaluation measures established an internal organizational process to capture feedback about measurement improvement to be more inclusive of those utilizing GusNIP programs.[99] In addition, a local WIC organization implemented an EDI-focused assessment that engaged staff to understand how to better advance EDI principles within the organization,[79] which highlighted areas for improvement such as the need to engage priority populations in decision making, leadership alignment with EDI, and naming racism or bias as key barrier to public health. Challenges with the organizational assessment process were noted and included natural disasters and supply chain issues that impacted WIC services, capacity, and readiness.[79] Finally, trainings were implemented among early childcare education settings located in "high need" areas to assist with the development of organizational policies to improve healthy eating and active living opportunities.[117]

Table 11. Organizational Change Strategies for Nutrition Programming to Advance Equity, Diversity, and Inclusion (EDI) (n = 3 sources)

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
Byker Shanks et al., 2022[99] Gus Schumacher Nutrition Incentive Program (GusNIP)	An internal process at GusNIP National Training, Technical Assistance, Evaluation, and Information Center (NTAE) was established to document EDI requests and observations in relation to a standardized dietary measure for assessing fruit and vegetable (FV) intake, to inform measurement solutions using an EDI lens. Examples of requests used to inform priorities have included: expanding questions about sex (used in an algorithm to estimate FV cup equivalents) (e.g., nonbinary); adding additional race and ethnicity options; improve FV example language to be more inclusive of diverse cultures; limiting offensive/stigmatizing measure language (e.g.,	GusNIP participants who participate in evaluation surveys regarding the impact of nutrition incentive and produce prescription projects that operate in many communities with low wealth throughout the United States (U.S.).	None reported.	None reported.	None reported.

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
	"Mexican-type salsa"); added survey languages; and added measurement for structural barriers that influence FV intake.				
Centers for Disease Control and Prevention, 2013[117] Meals in Early Childhood Education centers	Training was provided to childcare center staff employed at high-need childcare centers (e.g., places with high rates of unemployment) regarding developing healthy food and physical activity practices and institutional policies.	Staff at 65 childcare centers located in the Southern Nevada Health District and characterized as high need.	None reported.	None reported.	None reported.
National WIC Association, 2022[79] Special Supplemental Nutrition Program for Women, Infants and Children (WIC)	A WIC organizational assessment (e.g., strategic planning, structural and institutional barriers) was conducted to assess readiness and capacity to engage in/implement a health equity framework, aimed at elucidating EDI strengths/weaknesses to develop new policies and strategic plans to support organizational EDI.	Macomb County WIC staff (n=30) who identified as 63% White, 26% Black, and 11% Asian.	Opportunities for organizational improvement regarding EDI.	13 WIC staff completed the assessment. Several positive results were: 78% reported the organization works to address Social Determinants of Health (SDOH); 75% considered health equity and social justice important in recruitment and hiring; and 75% thought the organization addressed social justice implications during dissemination.	The organizational assessment process was not user-friendly and staff readiness for EDI training varied. Several added challenges included: a slow project start; competing staff priorities such as a transition to WIC electronic benefits transfer (EBT) cards; nationwide formula

Source Author, Publication Year Name of Program	EDI Strategy	Priority Population	Primary Outcomes	Main Results	Lessons Learned
				Areas for organizational improvement included: 82% reported the organization does not consider ways to involve historically oppressed groups; only 55% recognized value in conversations about racism in public health; only 54% felt leaders use health equity and SDOH in informing policy positions, allocation of work force, and budget decisions; and only 50% recognized value in having conversations about unconscious bias.	shortage; and COVID-19 supply chain issues.

Note: EDI, equity, diversity, and inclusion; GusNIP, Gus Schumacher Nutrition Incentive Program; NTAE, National Training, Technical Assistance, Evaluation, and Information Center; FV, fruits and vegetables; U.S., United States; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children; SDOH, Social Determinants of Health; EBT, electronic benefits transfer

Implications for U.S. Nutrition Programs

This report detailed the approach to and the results of a scoping review used to identify EDI strategies that have been intentionally used to better serve priority populations of U.S. nutrition programs and how these EDI strategies used recommended principles to address intersectional stigma.[1] Disparities in public health have long been documented[64] and the current U.S. social and political landscape has resulted in a renewed emphasis on food and nutrition security and health equity.[3] Results of this scoping review help to inform policy, practice, and research and evaluation agendas moving forward.

Overall, a main finding of this review is the limited (both in number and scope of supporting sources) application of EDI strategies to improve U.S. nutrition program reach and outcomes among priority populations. This area of inquiry and practice is rather new and rapidly growing (Figure 1). The increase in the number of more recent literature may mirror current social and political events and may demonstrate an increased focus on or willingness to implement strategies for achieving EDI. For example, since 2020, the COVID-19 pandemic's disproportionate damage to communities that have been made vulnerable due to long-standing inequities in health policies, systems, and environments, coupled with the public outcries to address persisting structural racism and bias, specifically highlighted by police use of undue force and harm among Black men and women in the U.S. (e.g., the murders of George Floyd,[121] Breonna Taylor,[122] and countless others[123]), have placed EDI at the center of American political agendas. Both the Biden Administration's National Strategy on Hunger, Nutrition, and Health[3] and the USDA Actions on Nutrition Security[5] prioritize EDI. However, these advances are also coupled with divisive and harmful actions among many political leaders, which have sought to ban critical race theory (that proposes inequities are built into American policies, systems, and environments),[124,125] overturn protections to women's autonomy and access to protective medical procedures[126], and target the rights of many LGTBQ+ individuals,[127] for example, despite public health and medical evidence in support of these strategies for achieving EDI.[3,5,16,128,129]

Review findings add to the current discourse on advancing EDI, specifically within the context of U.S. policies and programs that directly or indirectly influence food and nutrition security and health equity and can be used as a platform to build on. Specifically, eight categories of EDI strategies used among U.S. nutrition programs were identified, with the most evidence centering on the design or adaptation of nutrition program components and trainings for anti-racism or other EDI concepts. This may reflect the prominent national conversations on health disparities since it first acknowledged in the US Department of Health and Human Services report on the health of the nation in 1983.[130] These two complementary categories of strategies share a common objective: the enhancement of the quality, appropriateness, and relevance of nutrition programs for communities that have been marginalized, with the overarching aim of promoting equity. Most of the nutrition program tailoring aimed to improve cultural relevance or remove transportation barriers, stigma, and resource constraints (e.g., childcare costs), and all anti-racist/EDI training strategies aimed to improve the structural and cultural relevance of staff-participant interactions by deepening staff and community understanding of how various societal structures and underlying biases contribute to the marginalization of certain groups. However, the extent to how or if these more commonly used

EDI strategies result in long-term changes in practice or behavior is less clear,[35] given the limited evaluation of the potential, diverse impacts of these approaches. This was also a theme (limited evaluation potential) for EDI strategies captured less frequently, which included improvements to federal nutrition program access for eligible populations, workforce development or hiring practices, partnership development, improving the accessibility of acceptable food among nutrition program priority populations, and policy or organizational strategies. These are also the types of strategies more closely aligned with the key "pillars" for food and nutrition security as elevated recently by the Biden-Harris Administration[3] (compared to the more commonly used strategies discussed above). This is a clear gap in priority versus action.

Regarding federal nutrition programs, most EDI strategies were WIC[17,76–80,82,86,90,91,100,112,113] and SNAP[83,89,101,102,114] specific. However, these examples could be applied in other federal or local programs and likewise, local nutrition program examples could be tested in federal program settings. This would help to advance the practice and research and evaluation evidence base. Efforts to strengthen the evidence base are also needed and should be a priority of future practice and research and evaluation agendas moving forward. For example, the use of theory in guiding this work was scant and outcomes for demonstrating EDI strategy success were often limited (i.e., primarily focused on reach of services or knowledge improvements), when reported at all. Importantly, the priority populations for EDI strategies were not always explicit (which limits opportunities to name and dismantle interlocking systems of oppression)[1] and in many cases were narrowly focused only on race or ethnicity and/or socioeconomic standing. Rural[91,104,114] and LGBTQ+[78] persons were included as a priority population among only four sources and no sources focused on persons with disabilities, for example. This indicates much more effort is needed to understand the need for and impact of intentional EDI strategies to dismantle oppressive systems and structures that lead to disparities in programming, access, and outcomes in U.S. nutrition programs.

Application of recommended principles to address intersectional stigma,[1] coupled with efforts to fully characterize the intersecting identities of nutrition program participants or priority populations for EDI strategies, is needed in the design, implementation, and evaluation of future work aiming to advance EDI in U.S. nutrition programs. Only one source[109] embraced all four principles to address intersectional stigma, including recognizing and naming the influence of interlocking oppressive systems, aiming to dismantle systems of power and oppression, ensuring the leadership and engagement of priority populations in meaningful ways, and supporting collective action and cohesion.[1] Priority population engagement was a principle used the most frequently compared to others.[17,77,80,84,90,92–98,101,103,104,106,108,109,111,112,115,116] This gap is likely explained by limited guidance about how to address intersectional stigma in nutrition programs (i.e., Sievwright et al. published the recommended principles for public health pracitioners in 2022)[1]. Prioritizing this lens along with adequately characterizing the intersecting identities among marginalized populations will allow for a more nuanced understanding of how and if EDI strategies work to improve food and nutrition security and health equity and among which priority populations. The current state of the literature does not allow for drawing conclusions about this.

Limitations

It is important to recognize that while best practices were utilized to ensure evidence meeting the scoping review eligibility criteria were identified and included, it may be possible some sources were missed. For example, relevant sources may have been published prior to the year 1990; however, based on the trends in publication among sources included in this review, the number of potentially missed sources published prior to this year is likely small, if any. This area of inquiry also crosses multiple disciplinary lines and therefore certain sources may have been missed due to this, although efforts were made to choose databases most likely to have EDI information relevant to food and nutrition security and health equity. Further, results are likely biased toward efforts that are disseminated publicly, as much of this work may be occurring at the local community setting and may not be available in peer-reviewed literature, press releases, reports, or on nutrition-focused webpages. There is also nuance regarding EDI. For example, sources were not required to name equity, diversity, or inclusion as an outcome for a strategy to be included. Rather strategies needed to reflect intentional program or practice components implemented beyond standard nutrition programming (that often do already help to advance EDI to some extent). This may have resulted in missed literature, although the key terms were constructed to broadly capture potentially relevant sources. Last, while the review team represents persons with diverse lived experiences, we do not reflect many populations facing interlocking systems of oppression.

Key Policy Recommendations

- Increase federal, state, organizational, and local funding to support nutrition program EDI strategy development, implementation, and evaluation. For example, most of the captured EDI strategies were implemented within the context of WIC due to a special funding call, which demonstrates the importance of financial resources to drive this work forward. This includes improving financial resources for national technical assistance organizations to support this work, given many EDI strategy applications noted resource and capacity challenges.
- Policies that will address and acknowledge systematic structural racism and biases that impact health inequalities are needed. For example, although many EDI strategies were found promising regarding meeting stated goals, they may have limited impact given structural barriers and needed systems changes, that will take more time and sustained efforts beyond discrete EDI strategies.

Key Practice Recommendations

- Practitioners who work to address EDI in U.S. nutrition programs are encouraged to use the EDI categories and strategies identified by this review as examples for moving forward. It is recommended that EDI strategy selection, design, implementation, evaluation, and public dissemination are carried out following the recommended principles to address intersectional stigma[1] and that the priority population is adequately characterized (regarding intersecting identities that result in overlapping systems of oppression). This will help to move forward the state of the evidence and

demonstrate EDI strategies that should be implemented as standard federal/local nutrition program components.

- Technical assistance or related organizations who primarily work to support nutrition program practitioners should develop strategies to assist with workforce development, capacity building, and resources, given common challenges to implementing EDI strategies among nutrition programs noted in the literature.
- Practitioners should work to increase the opportunities for people from marginalized groups with intersecting identities to lead these initiatives, across federal and local nutrition programs of which there are existing relationships (i.e., advocating for or assisting other organizations in the application of recommended principles to address intersectional stigma).
- Practitioners should work to increase available educational workshops, trainings, and resources that acknowledge how systems of power, privilege, and oppression intersect and perpetuate inequalities within our society. For example, using anti-racism and EDI training concepts as highlighted in this review within and between organizations working to advance EDI in nutrition programs.

Key Research and Evaluation Recommendations

- Refine EDI strategies that support food and nutrition security among priority populations using literature reviews focused on a specific nutrition program and identified priority populations' attitudes, beliefs, and experiences related to said programming. Doing so may help to build evidence on additional types of EDI strategies that may be warranted, in addition to the examples identified in this review.
- Use robust mixed method approaches (quantitative and qualitative research methods) to illuminate the needs of priority populations and the impact of EDI strategies on food and nutrition security.[2]
- Support research and practice approaches that use theory, models, and frameworks and principles to address intersectional stigma in the design, implementation, and evaluation, and dissemination of EDI strategies, given this is lacking in the current evidence base. This may vary depending on the priority population and research-practice partnerships (e.g., traditional ecological knowledge, Getting to Equity, Just Transition).
- Robust evaluation is needed to identify which EDI strategies, beyond standard nutrition program design, are ideal for which populations and under which conditions to build the evidence base and optimize EDI strategies. This includes the selection of appropriate outcomes that factor in multi-level and longer-term changes and the use of gold-standard measures.
- Investigate the implementation of EDI strategies in several federal nutrition programs further. For example, not all 16 federal nutrition programs were represented in the EDI strategy literature, and it is unknown to what extent these strategies can work to advance EDI across different program contexts.

- Employ dissemination strategies that capture local, grassroots learnings from EDI strategy design and implementation to inform the research, practice, and policy agendas.

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Appendix A: Scoping Review Search Strategy

PubMed: (1990- present)

Title Abstract Search

equity OR diversity OR inclusion OR "health equity" OR "health inequities" OR "health disparities" OR "health disparity" OR "Intersectional Framework" OR intersectional OR "systemic inequities" OR "diversity equity and inclusion" OR DEI OR "social determinants of health" OR "nutrition barriers" OR "health barriers" OR "institutional racism" OR "systemic biases" OR "systemic inequities" OR "cross-cultural context" OR "cultural diversity" OR "Racial Inequity" OR "socially disadvantaged" OR "marginalised communities" OR "marginalized communities" OR "racial disparities" OR barriers OR "ethnic subgroups" OR "racial subgroups"

AND

"nutrition program*" OR "federal nutrition program*" OR "federal nutrition assistance program*" OR "nutrition security" OR "nutrition insecurity" OR "nutrition programmes" OR "food assistance" OR "nutrition incentives" OR "school meal program*" OR "school meal*" OR "public assistance program" OR "nutrition assistance program" OR "safety net programs"

(equity[Title/Abstract] OR diversity[Title/Abstract] OR inclusion[Title/Abstract] OR "health equity"[Title/Abstract] OR "health inequities"[Title/Abstract] OR "health disparities"[Title/Abstract] OR "health disparity"[Title/Abstract] OR "Intersectional Framework"[Title/Abstract] OR intersectional[Title/Abstract] OR "systemic inequities"[Title/Abstract] OR "diversity equity and inclusion"[Title/Abstract] OR DEI[Title/Abstract] OR "social determinants of health"[Title/Abstract] OR "nutrition barriers"[Title/Abstract] OR "health barriers"[Title/Abstract] OR "institutional racism"[Title/Abstract] OR "systemic biases"[Title/Abstract] OR "cross-cultural context"[Title/Abstract] OR "cultural diversity"[Title/Abstract] OR "Racial Inequity"[Title/Abstract] OR "socially disadvantaged"[Title/Abstract] OR "marginalised communities"[Title/Abstract] OR "marginalized communities"[Title/Abstract] OR "racial disparities"[Title/Abstract] OR barriers[Title/Abstract] OR "ethnic subgroups"[Title/Abstract] OR "racial subgroups"[Title/Abstract]) AND ("nutrition program*"[Title/Abstract] OR "federal nutrition program*"[Title/Abstract] OR "federal nutrition assistance program*"[Title/Abstract] OR "nutrition security"[Title/Abstract] OR "nutrition insecurity"[Title/Abstract] OR "nutrition programmes"[Title/Abstract] OR "food assistance"[Title/Abstract] OR "nutrition incentives"[Title/Abstract] OR "school meal program*"[Title/Abstract] OR "school meal*"[Title/Abstract] OR "public assistance program"[Title/Abstract] OR "nutrition assistance program"[Title/Abstract] OR "safety net programs"[Title/Abstract])

CabDirect- (1990- 2023)

Diversity OR equity OR inclusion OR "health equity" OR "health inequities" OR "health disparities" OR "health disparity" OR intersectional OR "systemic inequities" OR "diversity equity and inclusion" OR DEI OR "social determinants of health" OR "nutrition barriers" OR "health barriers" OR "institutional racism" OR "systemic biases" OR "systemic inequities" OR "cross-cultural context" OR "cultural diversity" OR "Racial Inequity" OR "racial equity" OR "socially disadvantaged" OR "marginalised communities" OR "marginalized communities" OR "racial disparities" OR "ethnic disparities" OR "ethnic subgroups" OR "racial subgroups" OR "nutrition equity" OR "inequitable food access" OR "structural racism" OR "racial discrimination" OR "Getting to Equity Framework" OR "minorities (people)" **(Abstract Search)**

AND

"nutrition program*" OR "federal nutrition program*" OR "federal nutrition assistance program*" OR "nutrition security" OR "nutrition insecurity" OR "nutrition programmes" OR "food assistance" OR "nutrition incentives" OR "school meal program*" OR "school meal*" OR "public assistance program" OR "nutrition assistance program" OR "safety net programs" OR "food and nutrition curriculum" OR "community oriented food security program" OR "socially embedded food security programs" OR "culturally based food" OR "evidenced-based nutrition program" OR "food systems" OR "nutrition policy" **(Abstract Search)**
AND
USA or "United States of America" **(All Fields)**

Agricola Search without Diversity Term- (1990-2022)
equity OR inclusion OR "health equity" OR "health inequities" OR "health disparities" OR "health disparity" OR intersectionality OR "systemic inequities" OR "diversity and inclusion" OR DEI OR EDI OR "social determinants of health" OR "systemic biases" OR "systemic inequities" OR "cultural diversity" OR "Racial Inequity" OR "racial equity" OR "socially disadvantaged" OR "marginalised communities" OR "marginalized communities" OR "racial disparities" OR "ethnic disparities" OR "ethnic subgroups" OR "racial subgroups" OR "nutrition equity" OR "inequitable food access" OR "structural racism" OR "racial discrimination" OR "minorities (people)" OR "nutrition equity framework" **(Abstract Search)**
AND
"nutrition program*" OR "federal nutrition program*" OR "federal nutrition assistance program*" OR "nutrition security" OR "nutrition insecurity" OR "nutrition programmes" OR "food assistance" OR "school meal program*" OR "school meal*" OR "public assistance program" OR "nutrition assistance program" OR "safety net programs" OR "food and nutrition curriculum" OR "food system equity" OR "nutrition policy" OR "nutrition educat*" OR "Nutrition research" OR "Getting to Equity Framework" OR USDA OR "united states department of agriculture" **(Abstract Search)**

Academic Search Complete: (1990- 2022)
Diversity OR equity OR inclusion OR "health equity" OR "health inequities" OR "health disparities" OR "health disparity" OR intersectionality OR "systemic inequities" OR "diversity equity and inclusion" OR "diversity & inclusion policies" OR DEI OR EDI OR "social determinants of health" OR "systemic biases" OR "cultural diversity" OR "cultural pluralism" OR "Racial Inequity" OR "racial inequality" OR "racial equity" OR "socially disadvantaged" OR "SOCIAL marginality" OR "social integration" OR "marginalised communities" OR "marginalized communities" OR "racial disparities" OR "racial subgroups" OR "structural racism" OR "racial discrimination" OR "race discrimination" OR " Equity Framework" OR "nutrition equity framework" OR "prevention of racism" OR "cultural prejudices" OR "INSTITUTIONAL racism" OR "food habit*" **(Abstract Search)**
AND
"nutrition program*" OR "federal nutrition program*" OR "federal nutrition assistance program*" OR "nutrition security" OR "nutrition insecurity" OR "nutrition programmes" OR "food assistance" OR "school meal program*" OR "school meal*" OR "public assistance program" OR "nutrition assistance program" OR "safety net programs" **(Abstract Search)**

SocINDEX with Full Text (1990- 2022)
Diversity OR equity OR inclusion OR "health equity" OR "health inequities" OR "health disparities" OR "health disparity" OR intersectionality OR "systemic inequities" OR "diversity equity and inclusion" OR

diversity OR equity OR inclusion OR DEI OR EDI OR "social determinants of health" OR "systemic biases" OR "cultural diversity" OR "cultural pluralism" OR "Racial Inequity" OR "racial inequality" OR "racial equity" OR "socially disadvantaged" OR "SOCIAL marginality" OR "INSTITUTIONAL racism" OR "social integration" OR "marginalised communities" OR "marginalized communities" OR "racial subgroups" OR "structural racism" OR "racial discrimination" OR "race discrimination" OR "Equity Framework" OR "nutrition equity framework" OR "prevention of racism" OR "cultural prejudices" OR "INSTITUTIONAL racism" **(Abstract Search)**

AND

nutrition OR dietetics OR "nutrition program*" OR "federal nutrition program*" OR "federal nutrition assistance program*" OR "nutrition security" OR "nutrition insecurity" OR "nutrition programmes" OR "food assistance" OR "school meal program*" OR "school meal*" OR "public assistance program" OR "nutrition assistance program" OR "safety net programs" OR "nutrition policy" (**Abstract Search)**

Directory of Open Access Journals

(diversity OR equity OR inclusion OR health equity) AND (nutrition programs) **All Fields**

<u>Grey Literature Searches</u>

ProQuest Dissertations & Theses Global

All Abstract & Summary Text (1990- Current)

(Diversity OR Equity OR Inclusion OR "health equity" OR "health inequities" OR "health disparities" OR "health disparity" OR "cultural knowledge") AND ("nutrition program*" OR "federal nutrition program" OR "federal nutrition assistance program*" OR "food system")

MedNar (first 3 pages of results), **Centers for Disease Control and Prevention- Racial and Ethnic Approaches to Community Health (REACH), Healthy Eating Research (HER), Nutrition & Obesity Policy Research & Evaluation Network (NOPREN), and Robert Wood Johnson Foundation**

(diversity OR equity OR inclusion OR health equity) AND (nutrition programs)