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African Americans' perceptions of nutrition interventions: a scoping review

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Abstract

Nutrition education and policy, systems and environmental (PSE) change interventions may be able to address food insecurity and obesity, conditions which are disproportionately experienced by African Americans. Work that seeks to address these disparities and advance social justice should uplift and learn from participant voices, particularly from marginalised groups. This scoping review aimed to summarise the available literature describing African Americans' perceptions of and experiences participating in nutrition interventions. We conducted an electronic literature search with the assistance of a research librarian which encompassed six databases (MEDLINE, PyscINFO, Agricola, ERIC, SocINDEX and ProQuest Dissertations & Theses) and identified thirty-five sources meeting our inclusion criteria. The majority of studies assessing African Americans' satisfaction with interventions examined educational interventions alone, and about half of the included studies assessed satisfaction through quantitative methods alone. The only studies which found participants to be dissatisfied with interventions used qualitative methods and examined interventions providing education alone. Future work should evaluate African Americans' experience with nutrition-focused PSE changes, interventions which may be better able to address racial disparities in obesity and food insecurity. Nutrition educators working with African Americans should also consider evaluating future interventions using qualitative inquiry, to obtain an in-depth understanding of participant experiences with interventions.

Keywords: **structural racism: health equity: nutrition education: African American health**

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Introduction

Obesity has been recognised as a public health crisis in the United States affecting nearly 40% of Americans and contributing to increased healthcare cost and risk of type 2 diabetes, cardiovascular disease and certain cancers.[1,2] Although individual knowledge, attitudes and beliefs are important contributors to food choice and obesity risk, researchers have proposed that one's food environment is also related to their risk of developing obesity.[3–6] Federally funded nutrition education programmes such as the Supplemental Nutrition Assistance Program Education (SNAP-Ed) and the Expanded Food and Nutrition Education Program (EFNEP) provide education aimed at encouraging healthy food choices to prevent obesity. These programmes are also encouraged by their respective funding agencies to implement policy, systems and environmental (PSE) changes which modify individuals' surroundings to better support healthful eating, acknowledging the influences on health behaviours that go beyond individual-level knowledge and motivation.[7] EFNEP outlined this guidance in a 2019 document which encouraged implementers of EFNEP to conduct and report PSE changes,[8] though there are no available published data on the proportion of EFNEP implementers actually implementing PSE change work. The SNAP-Ed programme currently requires that states implement PSE changes, and the most recent published data indicate that the percentage of SNAP-Ed programmes planning to implement PSE change work increased from 56% in 2014 to 98% in 2016.[9] Regardless of the programme implementing them, both nutrition education and PSE changes will be necessary to combat obesity, and they are most effective when paired together in multi-component, multi-level interventions.[10]

African Americans in the United States experience a higher rate of obesity compared with white residents of the United States,[2] which may be due in part to differences in their food environment. African American neighbourhoods are more likely to have a high density of fast food restaurants, also known as "food swamps",[11–15] and less likely to have access to a full-service grocery store.[11,16–18] While grocery stores do stock some less healthful foods, they sell a higher proportion of healthful items than other retail food outlets such as corner stores.[19] Nutrition researchers have recently acknowledged the need

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for a renewed focus on institutional factors and structural racism that contribute to racial inequities in nutritional and health status.[16,20–23] An important part of work that attempts to address these barriers and reduce racial health disparities is to uplift and learn from the voices and experiences of those who are intended to benefit from an intervention.[24] Participant input in the design, delivery and evaluation of interventions has the potential to improve the recruitment and retention of participants, the appropriateness of information provided and the sustainability of interventions.[25,26] Nutrition educators and public health professionals implementing educational or PSE interventions among marginalised populations such as African Americans should therefore assess whether they meet the needs of participants, through quantitative and/or qualitative feedback.

It may be particularly important to solicit feedback from members of marginalised populations participating in health-focused interventions because research has shown that healthcare providers may unintentionally contribute to racial health disparities if they are not providing culturally competent care.[27–29] This feedback may include participant ratings of satisfaction, which provide information about subjective experience with an intervention that goes beyond what can be collected through observation.[30] In addition to feedback obtained through quantitative satisfaction ratings, it is also important to explore participant experiences using qualitative research methods. Quantitative measures of satisfaction with an intervention may not truly represent the nature of service provided or hide negative participant experiences.[31,32] Regardless of the method used, nutrition PSE and education interventions conducted to benefit African Americans should collect feedback from participants regarding their attitudes towards, beliefs about and perceptions of the intervention to ensure that they are maximally beneficial to those participants.

There is a lack of literature reviews which have examined African Americans' feedback regarding, perceptions of and/or experiences participating in nutrition interventions. Previous reviews have examined public health interventions tailored to African Americans, including nutrition education,[33,34] weight loss programmes[35,36] and physical activity,[37] but these reviews have not included information regarding participant feedback or perceptions of the interventions. A review by Coughlin *et al.* conducted in 2017 examined nutrition interventions implementing community-based participatory research (CBPR) in African American populations but also did not include any information related to participants' perceptions of the interventions.[38] In order for interventions to improve the nutritional status of African Americans to be effective, culturally relevant and sustainable, implementers should assess participants' attitudes towards, perceptions of and experiences participating in those interventions.[34,39,40] A review encompassing this literature is needed. The primary aim of this scoping review is therefore to summarise the available literature that describes African Americans' attitudes, beliefs and perceptions of nutrition education and PSE interventions.

Methods

The protocol for this review was registered in advance at Open Science Framework (osf.io/taj5c/) and was conducted using guidance for scoping reviews provided by the Joanna Briggs Institute (JBI).[41,42] Our findings are reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses checklist for scoping reviews (PRISMA-ScR).[43] The scoping review was guided by this research question: What is the availability of literature describing African Americans' experiences participating in, and/or their satisfaction with, nutrition education programmes and PSE change interventions?

Search strategy

We developed our search strategy in partnership with a research librarian (R.L.M.) and registered the review protocol on 31 October 2020. The search was performed in November 2020 with a repeat search in May 2021 to identify any additional sources published since the initial search. An example of the search is available in Figure 1. We also included a search of the ProQuest Dissertations & Theses database, to identify relevant grey literature. The same inclusion and exclusion criteria were used to search websites and online resources pertaining to nutrition education, such as the National Association of Family and Consumer Science Agents (neafcs.org) and the Regional Nutrition Education and Obesity Prevention Centers of Excellence (psechange.org), which are no longer receiving funding. Separate search terms were used for the grey literature search to narrow results to those most relevant to the inclusion criteria (Figure 1). According to the recommendations of the JBI guidance for scoping reviews, we searched the reference lists of identified reports and articles for additional sources, and then the reference lists of any additional articles identified in this manner.

Eligibility criteria

Our research question and inclusion criteria were guided by the PCC (population, concept, context) mnemonic recommended by the JBI Reviewer's Manual for Scoping Reviews.[41]. Studies were included only if the populations were majority (>50%) African American, either children or adults. Both adult and youth populations were included to obtain the maximum amount of literature for review. Though gathering feedback and input from adults and children entails different methodologies and skillsets, this review aimed to describe all available literature on this topic and to explore whether soliciting feedback occurred more in youth or adult populations. Included studies were also limited to the context of the United States in the English language, conducted after 1991. The concept portion of our research question aimed to include publications implementing research or programme evaluation methods which captured African Americans' experiences while participating in nutrition education programs and PSE interventions, or that captured satisfaction with or perceptions of those interventions. This investigation focused exclusively on African Americans in the United States because of their unique historical experience of enslavement, Jim Crow discrimination and the current discriminatory effects of ostensibly colour-blind policies in the food environment in the United States.[15,20,44–46]

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Research Question: What are African Americans' perceptions of, experiences with, and satisfaction with nutrition education programs and interventions?

Example Search Terms used in Medline
Black or Blacks or "African American" or "African Americans" (TX ALL TEXT)
AND
"nutrition education" or "nutrition counseling" or "nutrition lesson" or "nutrition curriculum" or "nutrition intervention" or SNAP-Ed or WIC or EFNEP or "nutrition policy" (TX ALL TEXT)
AND
perception or perceptions or satisfaction or experience or experiences or qualitative or "qualitative methods" or "qualitative research" or interviews or interviewing or "focus group" or "focus group interview" (TX ALL TEXT)

Example Search Terms used for Gray Literature Search in ProQuest Theses & Dissertations
ab(Black OR Blacks OR "African American" OR "American Americans")
AND ("nutrition policy" OR "nutrition education" OR "nutrition counseling" OR "nutrition lesson" OR "nutrition intervention" OR SNAP-Ed OR WIC OR EFNEP)
AND (perception OR perceptions OR satisfaction OR experience OR experiences OR "qualitative research" OR interviews OR "focus groups")
Restricted to full text, after 1991.

Fig. 1. Search strategies for the scoping review of African Americans' satisfaction with nutrition interventions.

Data extraction and evidence mapping

Searches were conducted according to the strategy outlined above. The grey literature search was conducted by the first author (M.G.). All search results were exported to Zotero software, where duplicates were removed. Results were then exported to Excel (Office 365, v16.0; Microsoft Inc. Redmond, Washington). M.G. and D.H independently reviewed titles and abstract, then independently reviewed articles for inclusion. Any disagreement regarding which articles to include were resolved through consensus or a third reviewer (B.H.) if needed.

Standardised data extraction tools were designed by M.G. using Excel to address the relevant data for each research question. Descriptive information extracted from all articles included authors, publication year, study design, study objectives, setting, population and an intervention description. Additional information extracted from articles included the methods used to evaluate perceptions of and/or satisfaction with the intervention, quantitative results of those investigations and any qualitative themes that emerged from those investigations.

M.G. extracted data from all articles and distributed an equal number of articles selected for inclusion to B.H., D.B., M.D. and C.S. for data extraction, such that data were extracted from all articles by the first author and one co-author. Any disagreement in data extraction was resolved through consensus, and by a third reviewer (D.H.) if necessary.

Results

The literature search resulted in 1180 title and abstract records (Figure 2). Titles and abstracts were largely excluded from full-text review because they were not conducted in the United States, were not conducted in a majority African American population or described an observational study in which authors did not conduct an intervention. Of the sixty-eight full-text articles screened, thirty-five articles met the inclusion criteria.[47–80] Full-text articles were mostly excluded owing to study populations that were not majority African American ($n = 18$, 54%) or because the studies did not collect participants' satisfaction with or perceptions of interventions ($n = 12$, 36%). A small number ($n = 3$, 10%) were excluded because the studies were observational and lacked an intervention. Following our initial search which resulted in twenty-nine articles, an additional four articles were identified through searching of reference lists,[73,74,78,81] and two additional articles were identified in the repeated search in May 2021.[79,80] The articles identified in the repeated search included a combined cooking skills and nutrition education programme,[79] and a meal delivery programme designed to supplement WIC.[80]

Of the thirty-five articles which met our inclusion criteria (Table 1), nearly all ($n = 29$, 83%) were conducted in urban settings. A minority were conducted in rural settings ($n = 3$, 8.5%) or settings that were not identified as rural or urban ($n = 3$, 8.5%). Most studies were conducted with adults ($n = 26$, 74%), and a smaller number were conducted with youth ($n = 6$, 17%) or both adults and youth ($n = 3$, 9%). Most sources included in our review were peer-reviewed journal articles ($n = 27$, 77%), though some ($n = 8$, 23%) were dissertations or theses identified through the search of grey literature. No results from the search of webpages met the inclusion criteria.

A large majority of the included studies examined interventions which consisted of nutrition education alone ($n = 22$, 63%) (Table 2). For example, several studies assessed participants' perceptions of nutrition education for school-aged children,[47,53,55,61] while others assessed perceptions of educational programs for adults,[49,52,54,66,67,70,71,76,79,81] and some assessed perceptions of education provided by the WIC programme.[63,68,69] Five (14.5%) of the studies examined perceptions of combined nutrition education and PSE changes, such as programmes combining a community garden with

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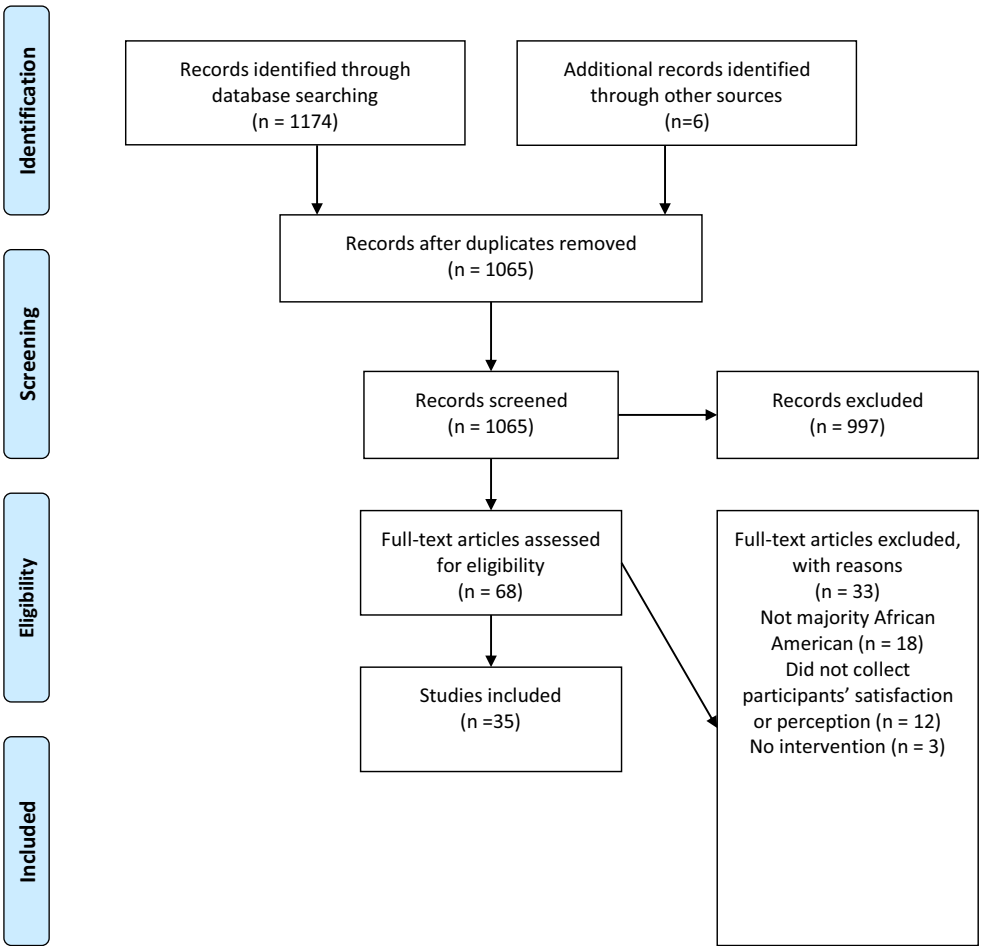


Fig. 2. PRISMA 2009 flow diagram.

education.[58,75] Another five (14.5%) studies addressed perceptions of environmental interventions alone or in combination with a system intervention ($n = 5$, 15%), such as the installation of salad bars in majority African American schools.[64] Finally, several studies evaluated participants' perceptions of system interventions alone or in combination with a policy intervention ($n = 3$, 8%), such as an intervention to assess nutritional risk of WIC participants,[50] a grocery delivery programme[80] and labelling of calories on restaurant menus.[51]

Across all included studies, many collected data regarding attitudes towards or perceptions of an intervention via quantitative surveys alone ($n = 10$, 28%). In most cases, these quantitative surveys asked participants whether they would attend programmes again or recommend them to a friend. Surveys also asked about specific components of the interventions to assess which portions were most enjoyed and/or accepted by participants. Other studies implemented mixed-methods evaluations, either using quantitative surveys that included open-ended questions or conducting qualitative interviews or focus groups separate from a quantitative survey ($n = 7$, 20%). Open-ended survey questions tended to focus on suggestions for improvement to the programme and asking which portions of the intervention were preferred by participants. Several studies implemented qualitative methods alone ($n = 18$, 48%), either through focus group discussions or semi-structured interviews. These qualitative-only studies largely focused on collecting information about participant satisfaction,[47,54,68,79,80] feedback or suggestions for improvement,[53,55–57,75] or individuals' general perceptions of the intervention.[50,51,62,63,78]

Among studies implementing quantitative methods alone or in combination with other methods ($n = 17$), twelve evaluated nutrition education interventions alone, two evaluated direct education along with a PSE change and three evaluated PSE changes alone. Among studies implementing qualitative methods alone or in combination ($n = 23$), fifteen evaluated nutrition education interventions alone, four evaluated direct educations along with a PSE change and four evaluated PSE changes alone. Two studies implemented either phenomenology or ethnography,[69,71] qualitative methods rarely used to evaluate public health interventions.

Nearly all included publications, whether implementing qualitative or quantitative methods, found that participants had positive experiences with the interventions studied. In general, the included studies found that school children expressed satisfaction with interventions that were perceived as 'fun' and had interactive or physical activity components,[47,53] but found less satisfaction among children with interventions that encouraged them to try new foods,[55,75] or made changes

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Table 1. Descriptive characteristics of included studies ($n = 30$)

Author, year, reference	Article type	Study design	Study objective	Study location (Urban/Rural)	Participant number and characteristics or setting	Intervention characteristics
Pierce, 2017[47]	Journal article	Mixed methods. Pre-test–post-tests assessing accelerometry and health behaviours. Participant and parent interviews	To develop and evaluate Mission Thrive Summer, an integrative health intervention for African American 9th and 10th graders on an urban farm	Baltimore, MD (urban)	36 African American 9th and 10th grade students	Direct education: Mission Thrive Summer programme included farming, nutrition education, cooking, physical activity, yoga, mindfulness and employment
Hull, 2017[48]	Journal article	Mixed methods. Quantitative survey of 150 WIC families and qualitative interviews to develop and beta-test a smartphone app	To develop and beta-test the Childhood Eating Well (CHEW) Smartphone app to reinforce WIC nutrition education	Nashville, TN (urban)	80 mothers in WIC, 40 Black non-Hispanic and 40 Hispanic	Direct education. A smartphone app which provided nutrition education and calculator tools for calculating fruit and vegetable value when using WIC
Ingram, 2011[49]	Dissertation	Mixed methods. Pre-test–post-test assessing changes in nutrition knowledge, BMI and self-efficacy; qualitative feedback about the intervention structure and content	To design and implement a nutrition education intervention to reduce cardiovascular disease risk factors among low-income, African American caretakers	Greensboro, Guilford County, NC (urban)	14 African American participants, low-income, primary caretaker of child <12 years	Direct education. A series of 8 nutrition education lessons
Dunlop, 2013[50]	Journal article	Mixed methods. Quantitative analysis of reproductive risks and qualitative analysis of post-counselling interviews	To determine the reproductive risks of women using WIC and the acceptability of preconception screening and counselling	Atlanta, Clayton County, GA (urban)	150 African American women participating in WIC	Systems intervention. A risk assessment questionnaire and brief counselling related to results of the assessment was integrated at WIC clinics
Auchincloss, 2013[51]	Journal article	Qualitative. A focus group study to obtain customer perspectives about use of calorie menu labelling	To explore influences on full-service restaurant customers' use and perception of calorie labelling	Philadelphia, PA (urban)	36 majority African American (78%), female, mean age 36 years	Policy and systems intervention. Mandatory nutrition labelling at restaurants
Davis, 2012[52]	Dissertation	Qualitative. Focus groups	To assess which messages were most memorable from EFNEP lessons	Marion and Lake Counties, IL (urban)	58 participants, majority African American, mean age 38 years	Direct education: a 9-lesson nutrition education programme offered by EFNEP
Shaw, 2010[53]	Dissertation	Mixed methods. Pre-test–post-tests of knowledge and behaviour change and qualitative focus groups to obtain opinions of participants	To assess the acceptability and effectiveness of two nutrition education programmes	Sumter, SC (urban)	60 African American youth 39 completed both pre- and post-test surveys, 17 focus group participants	Direct education: Jump into Foods and Fitness (JIFF) – an EFNEP curriculum used with children in 3rd–5th grade that teaches nutrition, physical activity and food safety in 60–90 min with hands-on activities and Quest for Health, a similar direct education curriculum, were compared
Downes, 2019[54]	Journal article	Mixed methods. Quantitative pre-test–post-tests of nutrition behaviours and qualitative interviews about results of the intervention	To determine the impact of a nutrition education programme on health behaviours, healthy lifestyle barriers, emotional eating and BMI in a community-based study	Southwest Florida (unknown)	47 primarily African American adults	Direct education. 6–8-week nutrition and education programme focused on fibre and losing weight. Included lessons on grocery shopping and restaurants
Baskin, 2009[55]	Journal article	Mixed methods. Qualitative formative research to develop intervention, quantitative pre-test–post-test surveys and qualitative summative evaluation using focus groups and key informant interviews	To describe the design, implementation and lessons learned from an obesity prevention pilot programme delivered in a low resource school in the United States	Birmingham, AL (urban)	113 African American students (47% female). More than half obese or overweight	Direct education. Designed in collaboration with students, teachers, parents and school administrators. Nutrition education in health classes and physical activity programme specifically for African Americans. Recognition programme for children demonstrating improved PA
Cowart, 2010[56]	Journal article	Mixed methods. Pre-test–post-test surveys of food intake and physical activity behaviours; qualitative interviews	To describe the phase I design and pilot-testing of this demonstration project and report the results	Syracuse, NY (urban)	22 African American churchgoers	Direct education, systems and environmental intervention. Genesis Health Project, a community-designed, culturally competent intervention in African American churches, offering a 12-week programme on physical activity and healthy eating. The church also changed the types of food served at events
Hopkins, 2018[57]	Journal article	Mixed methods. Participation data analysis and qualitative in-depth interviews	To test assess the feasibility and acceptability of a multi-component childhood obesity prevention intervention incorporating a caregiver component utilising technology-based approaches	Low-income, urban neighbourhoods in Columbus, OH (urban)	37 participants: 92% female, 92% African American, 59% low-income, 75% overweight or obese	Environmental and social marketing intervention. Combined texting and social media programme targeting caregivers of children in an obesity prevention camp to reinforce what the children were learning

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Table 1. (*Continued*)

Author, year, reference	Article type	Study design	Study objective	Study location (Urban/Rural)	Participant number and characteristics or setting	Intervention characteristics
Woodson, 2005[58]	Journal article	Quantitative. Pre- and post-tests assessing food behaviours and perceived benefits of the programme	To describe evaluate the Food for Health and Soul curriculum	Nevada (unknown)	349 participants, all African American, 71% female	Direct education. A 6-lesson curriculum using peer educators from the local congregation
Kannan, 2010[59]	Journal article	Quantitative. A pre-/post-test design to evaluate fruit and vegetable consumption, blood pressure monitoring behaviour and exercise behaviour	To develop, implement and evaluate a peer-led nutrition curriculum for African American women	Flint, Genesee County, MI (urban)	102 African American women, parenting, average age 27 years, low-income	Direct education, systems intervention and environmental intervention. Nutrition education focused on food shopping, dining, body image, gardening and spices. Systems and environmental interventions included church health teams to promote health messages at churches and forming walking clubs
Summers, 2013[60]	Journal article	Quantitative. Dietary recalls, anthropometric measurements and surveys conducted at baseline, immediately post-intervention and 4 months after the intervention	To investigate whether intentions predict dietary change and possibly modify the impact of programme attendance on diet	Public housing in Washington, DC (urban)	96 African American women: 49 attended 1–5 sessions, and 47 attended 6–7 sessions	Direct education. Six 90-min lessons over 20 weeks. Providing nutrition education specifically tailored to address barriers in low-resource environments
Blom-Hoffman, 2001[61]	Dissertation	Quantitative. A quasi-experimental, pre-test–post-test design using a non-equivalent control group	To conduct an outcome evaluation of the 'Every Day, Lots of Ways' programme, a classroom-based nutrition education programme	Elementary school in Nebraska (urban)	158 African American K–5 students; 94 intervention and 64 in a comparison group	Direct education. An interdisciplinary nutrition curriculum: 35 lesson plans spilt into three themes (10 lessons for K-1st grade, 12 lessons for 2-3rd and 13 lessons for 4th–6th, included a parent newsletter
Whitaker, 2016[62]	Journal article	Qualitative. 30 interviews conducted with pregnant women and 11 interviews conducted with prenatal care providers	To investigate patient and provider perceptions of weight gain, physical activity and nutrition counselling during prenatal care visits	Columbia, SC (urban)	30 pregnant women: 15 African American, 15 White women	Direct education. General counselling on gestational weight gain, physical activity and nutrition during pregnancy
Joseph, 2018[63]	Dissertation	Qualitative: Foucauldian discourse analysis guided by social constructionism; analysed WIC materials and conducted interviews with WIC recipients	To explore the child feeding experience constructed within New York State WIC materials and discourses used by Black WIC recipients about WIC-related child-feeding experience	New York, NY (urban)	16 Black (could include other ethnicities) cisgender women who participated in WIC and live in the NY metro area; first-time mothers	Direct education. WIC services for postpartum women and babies/children; specific focus on feeding practices including breastfeeding and formula feeding
Bean, 2018[64]	Journal article	Quantitative. Pre-test–post-test, quasi-experimental design using plate waste study and surveys of participating youth	To evaluate the 1-month impact of salad bars on fruit and vegetable (FV) selection, intake and waste	Richmond, VA (urban)	Plate waste: 282 pre-plates and 443 post-plates; Surveys: 1193; >95% African American	Environmental and systems intervention: installation of salad bars through a collaborative programme called Eat Fresh
Srivastava, 2018[65]	Journal article	Mixed methods. Quantitative quasi-experimental design with monthly anthropometrics, pre–post Food Behavior Checklist and satisfaction assessments; qualitative portion included journals and written feedback	To test the feasibility of a pilot programme, Shape UP and Eat Right (SUPER), which used the shared medical appointments method of clinical practice	Boston, MA (urban)	5 Black mothers, 8 Black children from lower socio-economic zip codes; inclusion criteria also included being overweight or obese	Direct education and systems intervention. A 12-month programme of shared medical appointments with monthly workshops on physical activity, nutrition and goal setting
Jones, 2011[66]	Dissertation	Quantitative. One group pre-test–post-test design	To pilot test and assess the effectiveness of a culturally tailored nutrition education pilot intervention for African American women focused on fish consumption	Sacramento, CA and Richmond, CA (urban)	109 African American women aged 18–55 years	Direct education. Nutrition and Healthy Lifestyles, a 4-week programme focused on MyPyramid and fish consumption guidelines using pre/post assessments, weekly discussions and recipe tasting
Sheppard, 2016[67]	Journal article	Quantitative. Two-arm RCT: usual care (control) and intervention arms; assessed anthropometric measures, dietary intake, cardiovascular fitness and intervention satisfaction	To assess the efficacy of a culturally targeted 12-week multi-modal lifestyle intervention in overweight and obese Black survivors	Washington, DC (urban)	31 African American women, overweight or obese with early-stage breast CA. Usual care (16) or intervention (15)	Direct education. 12 weeks with 30-min group physical activity and 60-min nutrition education. Focused on weight change, increasing fruits and vegetables, and reducing calories. Included biweekly motivational interviewing coaching sessions (total of 6 15-min calls)

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Table 1. (*Continued*)

Author, year, reference	Article type	Study design	Study objective	Study location (Urban/Rural)	Participant number and characteristics or setting	Intervention characteristics
Cricco-Lizza, 2005[68]	Journal article	Qualitative. Ethnography, including 63 observations and interviews with 11 key informants (2–3 in-depth interviews and 147 phone calls across 11 key informants)	To explore the influence of WIC on Black women's infant-feeding decisions including understanding their belief and experiences with WIC	New York, NY (urban)	319 people (130 Black women enrolled in WIC, 189 relatives/friends)	Direct education. The intervention examined is participation in the WIC programme. Direct education from WIC staff including nutritionists and lactation consultants
Jackson, 2020[69]	Dissertation	Qualitative. Interpretative phenomenological analysis of 18 interviews	To obtain the perspectives and lived experiences of WIC recipients and uplift their feedback and ideas to inform the development of culturally relevant tools	Los Angeles, CA (urban)	18 women who identify as Black or African American, received WIC, have a child less than 5 years old	Direct education. The intervention examined is participation in the WIC programme. Direct education from WIC staff including nutritionists and lactation consultants
Senior Angulo, 2016[70]	Dissertation	Mixed methods. Study occurred in a sequential design, first formative qualitative research then quantitative pilot testing	To explore eating and physical activity behaviours among college-aged African American women to develop a theory-driven web-based intervention and pilot test the intervention to assess effectiveness, satisfaction, impact and acceptability	South Carolina (unknown)	Formative focus groups: 16 Black women in college aged 18–30 years. Pilot testing: 40 Black women in college aged 18–30 years (20 control, 20 treatment)	Direct education. Online Nutrition Education for Sisters (ONES): a culturally tailored web-based nutrition education intervention for college-aged African American women
Kolavalli, 2019[71]	Journal article	Qualitative. Ethnography, including 58 informal interviews with people seeking food aid (27 in focus groups, 31 in interviews) and participant observation at four nutrition education classes	To examine the experiences of African American food-aid seekers as they navigate food charity programming that includes mandatory nutrition education	Kansas City, KS and MO (urban)	58 food-aid seekers: 55 African American or Black, 5 Latina and 3 White. 55 were women, 3 were men. 40–80 years old.	Direct education. A 7-week nutrition education programme that offers a free weekly meal and a free bag of groceries at the completion of a class; topics include goal setting, food safety, reading food labels and counting calories. The curriculum is taught in the context of what may be accessible in a food desert
Herring, 2020[72]	Journal article	Quantitative. A prospective, parallel-arm randomised controlled trial	To evaluate the feasibility of peer coaching to promote postpartum weight loss among ethnic minority women with obesity	Philadelphia, PA (urban)	22 obese Black or Latina mothers <6 months postpartum – 11 in the intervention group and 11 in standard WIC care	Direct education and environmental intervention. Education provided over the phone and one in-home visit. Environmental intervention targeted the social environment and included a texting programme and Facebook recipes and tips
Williams, 2006[81]	Journal article	Quantitative. A survey of a sub-sample of participants in a peer-delivered nutrition education intervention	To determine the extent to which participants in Eat Well Live Well (EWLW) perceive the content to be culturally relevant and to what extent are cultural relevance and programme satisfaction associated with one another and with changes in dietary patterns	Grace Hill, a majority African American community in St. Louis, MO (urban)	152 African American female participants with type 2 diabetes, mean age 40, 44% reporting an income below the poverty line, 82% with a BMI greater than 30	Direct education. EWLW nutrition programme provided nutrition education culturally tailored to African American women with type 2 diabetes
Story, 2003[73]	Journal article	Quantitative. A two-arm parallel group, randomised controlled trial testing the effect of a nutrition and physical activity education programme on African American girls aged 8–10 years compared with a control group with no nutrition education	To describe the development of an after-school intervention programme, explain evaluation measures used, and present findings from the 12-week, randomised controlled pilot trial	Minneapolis, MN (urban)	54 African American participants aged 8–10 years, with BMI percentiles >25% for their age and sex	Direct education. An after-school intervention twice a week for 12 weeks focused on healthy eating and physical activity
Suarez-Balcazar, 2006[74]	Journal article	Quantitative. A cross sectional survey	To assess African Americans' perceptions of a local farmers' market and access to healthy produce in their community	Chicago, IL (urban)	64 attendees of a farmers' market located in a majority African American community	Environmental intervention. A farmers' market was added to an African American working-class community through work of the Chicago Food System Collaborative
Haynes-Maslow, 2021[79]	Journal article	Mixed methods. Quantitative pre–post evaluation of food behaviours and 24-h dietary recall. Qualitative focus groups also held to solicit feedback about the intervention	To describe the development of Healthy All Together (HAT), report impacts on adult participants in the pilot of HAT and summarise programme feedback from the pilot implementation	Two rural counties in North Carolina. (rural)	19 participants in quantitative pre/post assessments, 12 participants in focus groups. 100% African American	Direct education. HAT was a nutrition and cooking education programme provided to caregivers and children together for 2 h each week over 6 weeks. Lessons consisted of 1 h of nutrition education and 1 h of cooking

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Table 1. (*Continued*)

Author, year, reference	Article type	Study design	Study objective	Study location (Urban/Rural)	Participant number and characteristics or setting	Intervention characteristics
Grier, 2015[75]	Journal article	Mixed methods. Pre-test–post-tests and qualitative interviews	To determine the feasibility (demand, acceptability, implementation) of a 10-week gardening and nutrition education intervention for youth living in public housing	Dan River Region, VA (rural)	43 youth, 97% African American, aged 9–17 years, living in low-income housing. Also included 25 parents and 2 site leaders	Direct education and environmental intervention. A community garden and nutrition education programme for youth living in public housing
Conlon, 2015[76]	Journal article	Quantitative. A pre-test–post-test design	To investigate differences in healthcare-related Quality of Life (HRQoL), anthropometrics and intention to change eating behaviours in participants in Bronx Oncology Living Daily (BOLD)	Bronx County, NY (urban)	83, 95% female, 55% African American, 76% breast cancer survivors. 50% obese, 30% diabetic	Direct education. A 12-session programme that addressed various aspects of healthy eating and also spent one session specifically addressing resources and barriers in their local community
Cyzman, 2009[77]	Journal article	Qualitative. The article describes a case study	The case study describes the impact of the Activate West Michigan Coalition on the local food environment	Grand Rapids, MI (urban)	Majority African American Community	Environmental and systems intervention. Nine gardens were planted, providing produce and educational programmes to 2000 students and established five farmers' markets in low-income areas
Baker, 2013[78]	Journal article	Mixed methods. A process and outcome evaluation	To describe the process and lessons learned from creating rural community gardens and the benefits and challenges of moving from individual and social strategies to an environmental intervention	4 majority African American communities in Southeastern MO (rural)	50 participants responded to quantitative survey (86% African American), and 4 focus groups were held with 6–10 individuals each	Environmental intervention. Researchers partnered with existing health coalitions to build community gardens in rural, majority African American communities to increase access to fresh produce
Locher, 2020[80]	Journal article	Mixed methods. Quantitative process measures of delivery placement and receipt and qualitative interviews to collect feedback and assess acceptability	To describe the feasibility and acceptability of Special Delivery, a longitudinal nutrition intervention that delivers healthy foods to pregnant youth	Ann Arbor, Detroit, and Flint, MI (urban)	27 participants, 59% African American, aged 14–24 years, average age 20 years	Systems intervention. The Special Delivery programme is an intervention to deliver $35 of healthy food, fruits and vegetables to pregnant low-income young women enrolled in WIC twice a month until the end of their pregnancy

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Table 2. Details of sources addressing African Americans' perceptions of and/or satisfaction with nutrition interventions

Author, year, reference	Evaluation of the perceptions of and/or satisfaction with intervention	Quantitative results	Qualitative results and/or themes identified	Retention rate of participants to study completion (if applicable)
Pierce, 2017[47]	Qualitative. A post-intervention interview with participants discussed satisfaction among parents and youth participants	N/A	Most youth participants described the intervention as "fun" and many described self-awareness and self-regulation as outcomes of the intervention. Parents described MTS as "a great experience", "fun" and "positive health wise" but also expressed concerns that their children did not change eating habits	15 of 17 (88%)
Hull, 2017[48]	Mixed methods. Structured quantitative questionnaires assessed the ease of use, helpfulness, and satisfaction with various parts of the app, and perceived benefits of the app. In addition, qualitative feedback was collected through open-ended interview questions	81% reported that they used the WIC shopping tools, 68% said they used the snack gallery, and 75% indicated that they received or read the healthy snacking tips. Combined, 91% reported using at least 1 of the 3 components at some point during the 3 months	Reasons for not using the app: lost/broken phone, failed installation, problems with scanner, inconvenient, confusing, hard to use in store. Barriers for users: slow scanning, incorrect after change in WIC, non-WIC approved items, confusing, needed more instructions, forgot to use, limited time to shop, did not include prices. Benefits for users: worked well, shopping tools helpful, fun, good information	63 of 80 (79%)
Ingram, 2011[49]	Mixed methods. A survey collected quantitative and qualitative feedback about intervention structure, content and implementation using a 5-point Likert scale	All participants said they would recommend the class to other women and that the intervention components were appropriate	Favourite parts included cooking demos, handouts and the discussion. Least favourite parts included time commitment, children in the classroom and weight measurements. Participants noted that more physical activity could be added, as well as more cooking demos	14 of 23 (61%)
Dunlop, 2013[50]	Qualitative. Individual semi-structured interviews asked about participants' perceptions of and satisfaction with the intervention	N/A	66% of participants commented spontaneously that the risk assessment was a positive experience. 98% indicated they were comfortable with the questions. Three participants who were not comfortable commented that the questions were outside the scope of WIC	100% of participants who participated in the one-time intervention participated in follow-up interviews
Auchincloss, 2013[51]	Qualitative. Focus groups collected information on themes that influenced individuals' use of nutritional labelling. Also collected information regarding perception of the labelling	N/A	Three main themes: nutrition knowledge, menu display and design, and normative attitudes and behaviours. Most participants said they would not use the information. Barriers included low prior knowledge; confusion over numbers, little time and attention given to reading the menu; low expectations of nutritional quality of restaurant food; and restaurant discounts, promotions and social influences that reinforced disinterest in nutrition	Not applicable: PSE intervention
Davis, 2012[52]	Qualitative. Focus groups collected information on participants' most remembered messages from EFNEP	N/A	Memorable message themes included recipes, portion control, food safety and fruit and vegetable recommendations. Messages were most memorable if they were personally relevant, involved vivid colours or visual heuristics	Not reported

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Table 2. (*Continued*)

Author, year, reference	Evaluation of the perceptions of and/or satisfaction with intervention	Quantitative results	Qualitative results and/or themes identified	Retention rate of participants to study completion (if applicable)
Shaw, 2010[53]	Qualitative. A focus group after the intervention addressed the acceptability of the two programmes among African Americans. Coded themes into curriculum acceptability, general opinions, acquired knowledge and preferred curriculum modifications	N/A	Jump into Fitness: Participants enjoyed the snacks and games. Participants said they would rather participate in PA activities and that nutrition information was boring. Also stated that "All participants thought that the lessons were appropriate for all races". Wanted access to the curriculum during the school day. Quest for Health: positive feedback; participants thought it was designed with African American children in mind, but it "would have the same effect in an audience of any race."	39 of 59 (66%)
Downes, 2019[54]	Qualitative. Telephone interviews were conducted with 13 participants which asked "would you recommend the program to others?"	N/A	All participants responded that they would recommend the programme to a friend or family member. Overall, participants responded favourably to their participation in the programme. All interviewed reporting making changes because of the intervention	20 of 47 (42%) completed post-test surveys. 13 of 47 (28%) completed follow-up interviews
Baskin, 2009[55]	Qualitative. Process evaluation data were collected through meeting minutes with teachers and parents and feedback from staff and students during lessons. Focus groups with students and staff at the end of the intervention addressed opinions of the programme, suggestions for improvement	N/A	Two focus groups of 8–10 students each. Students liked the programme and thought it should be expanded to 6th grade students. Students liked the PE component. Students did not like trying new foods and did not care for healthier choices in the cafeteria. 7 cafeteria staff in a separate focus group said that students in 6th–7th grade would not try new foods, but younger students were open to new foods. They felt that students hated anything that tasted different, and that it was important to make food appear appetising	Not reported
Cowart, 2010[56]	Qualitative. Feedback and quotes were gathered from each participant at the post-test celebration event	N/A	All respondents judged the programme "very helpful". Themes that emerged regarding its benefits were: useful educational content promoting greater awareness of health issues, improved wellbeing, greater motivation and discipline, increased self-esteem and empowerment, social support and family involvement	22 of 55 (40%)
Conlon, 2015[76]	Mixed methods. Quantitative pre- and post-test telephone interviews addressed satisfaction. Qualitative open-ended questions were included as part of the interview addressing which parts of the programme were most helpful/challenging	More than 90% of participants reported that the programme helped them achieve their short-term goals. When asked how well instructors met their needs, 64% responded with excellent and 36% with good N/A	Open-ended questions revealed similar satisfaction with the programme. Challenges included making time to exercise and doing the exercises included in the programme. Suggestions included continuing the programme beyond 12 weeks and including information on maintaining accomplishments and food choices and motivation	53 of 83 (62%)

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Table 2. (*Continued*)

Author, year, reference	Evaluation of the perceptions of and/or satisfaction with intervention	Quantitative results	Qualitative results and/or themes identified	Retention rate of participants to study completion (if applicable)
Hopkins, 2018[57]	Qualitative. In-depth interviews were conducted to elicit feedback on technology engagement strategies		Participants expressed that the text messages provided a connection to intervention activities. All participants agreed that three text messages per week were acceptable and sufficient. Participants recommended utilising a more interactive messaging platform with more opportunities to reply and participate. Participants expressed concern about a potential invasion of privacy	23 of 37 participants (62%) fully participated in the programme
Grier, 2015[75]	Qualitative. Post-test interviews asked 8 open-ended questions of participants, including what they liked most/least, ideas for improvement and ideas for engaging more kids	N/A	Participants liked trying new food, gardening, content of curriculum. Liked least: nothing, trying new foods. Suggestions for future: adding more games, food sampling, different variety of plants. Getting new kids engaged: suggested printed material, large recruitment event, door-to-door, word of mouth	32 of 44 (74%) completed the programme. 25 of 43 (58%) completed follow-up interviews
Woodson, 2005[58]	Mixed methods. Quantitative pre-test–post-test design included questions regarding perceived benefits of the programme. Qualitative feedback was also collected from attendees	94% of respondents indicated that they would use the information learned, and 96% would encourage others to attend	Participants' comments included: "Now I understand what to look for when reading labels." "I could and will utilise the healthy and wise eating/nutrition tips I have learned from this workshop."	349 of 485 (72%)
Kannan, 2010[59]	Mixed methods. A qualitative post-test survey with facilitators and attendees addressed satisfaction with 14 aspects of the programme using a Likert scale 1–5 (delivery, content, format, activity sheets, usefulness for women of childbearing age, race/ethnic and cultural applicability and relevance). Qualitative feedback was obtained through phone interviews with participants and facilitators	85% rated lessons as "very useful" or "useful". 100% would recommend the programme to others. 25% reported some difficulty with the lesson focused on health promotion. They preferred interactive discussions and recommended (1) that family tree be introduced as a take-home activity and (2) that visual images be incorporated to describe micronutrient deficiencies such as neural tube defects	Qualitative interviews revealed that 45% of participants would prefer shorter lessons. Most described worksheets (65%), handouts (60%) and case scenarios (70%), as interesting and relevant to African American women. Others commented that they learned new and practical nutrition information. Several women indicated that they liked the holistic focus of the curriculum and that, as a result, they developed new skills for a healthy lifestyle	58 of 102 (57%) participants attended at least one session of the programme. Retention for the length of the programme was not reported
Summers, 2013[60]	Quantitative. An 18-item scale asked participants questions related to their programme experience during post-intervention and at 4 months follow-up	Participants who were satisfied with their social and leisure activities and participants who shared a meal with their family had overall higher programme satisfaction	N/A	122 of 187 (65%) participants attended at least one session of the programme. 92 (49%) of participants attended 6 or 7 out of 7 sessions offered
Blom-Hoffman, 2001[61]	Quantitative. Assessed satisfaction with the parent newsletters by a survey Student's satisfaction with the EDLW programme was assessed by using a 7-item modified version of the Children's Intervention Rating Profile	On average, acceptability was high ($M = 1.45$) across the 3 groups of students; 47% of the parents reported they liked receiving the newsletters "a lot", 47% reported they liked receiving the questionnaires "some", and 94% of parents wanted them the following year	N/A	Not reported
Whitaker, 2016[62]	Qualitative. The interview guide for patients included questions about their perceptions of advice given to them by their provider on weight gain, physical activity and nutrition	N/A	Most of the women interviewed shared they received advice on weight gain, physical activity and nutrition, and of these women, most of them had positive perceptions of the advice	Not applicable

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Table 2. (*Continued*)

Author, year, reference	Evaluation of the perceptions of and/or satisfaction with intervention	Quantitative results	Qualitative results and/or themes identified	Retention rate of participants to study completion (if applicable)
Joseph, 2018[63]	Qualitative. Semi-structured interviews with WIC participants assessed their perception of the programme and what role WIC played in how they feed their children	N/A.	Themes included: (1) participants being unsatisfied with WIC but needing the services, (2) participants produce boundaries between themselves and WIC by positioning WIC as intrusive, surveillant, etc., (3) participants were unable to engage in breastfeeding owing to time constraints, (4) participants acknowledging their own expertise in feeding their children	Not applicable
Bean, 2018[64]	Quantitative. 4th and 5th grade students completed a post-survey with questions about how much they like the salad and perceptions of choice and variety	40% of 4th and 5th graders reported never using the salad bar, 61% stated that they liked their school salad bar and the FVs on the salad bar, and 85% stated that they liked the ability to choose	N/A	Not applicable: PSE change intervention
Srivastava, 2018[65]	Mixed methods. Quantitative measures of satisfaction were assessed at the end of each session and at the end of the programme using a validated five-point Likert scale. Qualitative feedback was obtained through participant journals	Only two families completed all 12 sessions; all 5 adults completed the satisfaction survey with 40% reporting very satisfied and 60% reporting extremely satisfied	Barriers to participation included time conflicts due to other family member activities, transportation, loss of employment/housing, moving, new birth and lack of personal time. Food journals indicated Families added fish to their diet, read labels more often and increased meal planning	2 out of 5 families (40%) completed the programme. Average attendance at programme sessions was 23% of enrolled participants
Jones, 2011[66]	Quantitative. Pre-test–post-test dietary behaviour surveys which also included satisfaction measures	85% participants would recommend this programme to other African American women. 54% believed the programme should last longer than 4 weeks and longer than 1 h. 48% indicated "learning how to prepare healthier foods" as the most enjoyable aspect of the study	N/A	41 of 49 (84%)
Sheppard, 2016[67]	Mixed methods. Quantitative portion included a standardised survey with questions regarding satisfaction with the nutritionists, exercise physiologist and survivor coach using a Likert scale. A qualitative focus group was also conducted to identify positive and negative aspects of the intervention	Overall satisfaction with the programme was 86% (high). Women who participated in the intervention group positively evaluated interventionists' performance and skills. Components endorsed by participants included having a nutritionist (61%), an exercise physiologist (69%), and a survivor coach (61%), and the targeted design for African American women (54%)	Liked multi-faceted nature of the programme and thought culturally adapted materials were useful; wanted greater interaction with other group members and study staff and wanted more adaptation to their life situations, context, etc.	10 of 15 (67%)
Cricco-Lizza, 2005[68]	Qualitative. Assessment of satisfaction and general experience with WIC through participant observation of 130 women enrolled in WIC during WIC visits, and 11 key informant interviews with WIC participants	N/A	Key informants were uniform about positive beliefs about WIC. WIC was a trusted source of assistance for the participants. WIC staff personalised nutrition education and provided emotional support, which also created more trusting partnerships between BWEW and WIC staff; however, the women did not regard some of the videotapes positively, and the investigation found a need for more support postpartum	Not applicable

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Table 2. (*Continued*)

Author, year, reference	Evaluation of the perceptions of and/or satisfaction with intervention	Quantitative results	Qualitative results and/or themes identified	Retention rate of participants to study completion (if applicable)
Jackson, 2020[69]	Qualitative. An interpretive phenomenological analysis of 18 interviews with African American women enrolled in WIC. Used the Black Feminist Thought framework to guide whose voice was centred and how these voices could be centred in implications of this research	N/A	Participants reported not being listened to during pregnancy and labour, receiving inadequate care and the associated stress. Participants acknowledged their unique gifts, strengths and assets as Black women and often chose Black providers and WIC staff to provide care. Participants described WIC as safe and welcoming, and that being Black did not influence their treatment at WIC. Women felt having Black WIC staff helped them feel comfortable. Participants also felt that WIC helped make things easier when their babies arrived. Participants had no suggestions for improvements to WIC. The supports considered most helpful were food itself, breastfeeding support and brochures and flyers	Not applicable
Senior Angulo, 2016[70]	Quantitative. Satisfaction was assessed with a post-intervention quantitative survey of acceptability using a 1–7 Likert scale	94% of participants rated the slogan for the programme and the visual appeal of slides as appropriate. Weekly exercise videos and recipes were valued as beneficial by 94% and 83%, respectively. The duration of the programme was considered appropriate by 94%, and satisfaction for all modules was 100%	N/A	36 of 40 (90%) enrolled participants completed the programme in its entirety
Kolavalli, 2019[71]	Qualitative. An ethnography consisting of qualitative interviews with participants and observation of direct education lessons.	N/A	African American programme participants pushed back against depictions of their communities as spaces of lack, representations of their families as ignorant about healthy food, the notion of not having skills, knowledge and/or access to resources to meet their own health needs, and the individualisation of healthy eating goals. Participants focused on structural issues like economic inequity and violence. Participants often forcefully rejected discussions of nutrition that divorce health from socio-economic inequality	Not reported
Herring, 2020[72]	Quantitative. A post-test survey asked participants to rate satisfaction with each intervention component and quantify the degree to which the programme was helpful	Most intervention participants strongly agreed that the skills they learned were extremely useful (90%) and that the coach calls were extremely helpful for weight control (80%). Only 2 of 11 participants found the Facebook group extremely useful	N/A	22 of 22 (100%)
Cyzman, 2009[77]	Quantitative. Two sets of surveys were used to evaluate participant satisfaction with gardens and farmers' markets	100% of market attendees would come again and appreciated access to fresh vegetables, 98% learned about community resources. 97% of students participating in gardening education said they enjoyed it	N/A	Not reported

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Table 2. (*Continued*)

Author, year, reference	Evaluation of the perceptions of and/or satisfaction with intervention	Quantitative results	Qualitative results and/or themes identified	Retention rate of participants to study completion (if applicable)
Baker, 2013[78]	Qualitative. Data regarding perceptions of the intervention and its benefits and challenges were collected through 4 focus groups with 6–10 attendees each during community coalition meetings	N/A	Key themes included: partnerships enhancing community gardens by providing maintenance and equipment, benefits of the gardens including learning opportunities and providing produce to community members, challenges with organisation and getting people to maintain the garden, and the gardens providing opportunities to get to know community members	Not applicable: PSE change intervention
Williams, 2006[81]	Quantitative. A survey assessed perceived cultural relevance of and satisfaction with a nutrition education programme, using 25-item and 7-item scales	Overall, participants (90%) believed the programme to be culturally relevant and were very satisfied with the programme (82%). Cultural relevancy was significantly associated with greater programme satisfaction and changes in dietary patterns	N/A	Not applicable: PSE change intervention
Story, 2003[73]	Quantitative. A survey with participants and their parents/caregivers, which included process evaluation data and satisfaction measures	92% of participants reported liking the programme “a lot”. Over 80% of the parents, and 90% of the girls, enjoyed the family nights. The majority of parents reported that both they and their daughters were very satisfied and would recommend the programme to other parents	N/A	53 of 54 (98%)
Suarez-Balcazar, 2006[74]	Quantitative. A cross-sectional intercept survey of 64 farmers’ market attendees	Residents were more satisfied, with access to fruits and vegetables provided by the summer farmers’ market than they were with the access, quality, variety and prices of products available to them year-round through local stores	N/A	Not applicable: PSE intervention
Haynes-Maslow, 2020[79]	Qualitative. Two focus groups conducted with 12 programme participants to collect qualitative feedback and assess satisfaction	N/A	Participants said their favourite aspect of HAT was cooking. Half of the participants said the nutrition education portion of the class was too long. All participants said their children had positive experiences with the class. They stated that their children asked whether they could help with meals at home. However, most caregivers chose not to have their children cook at home because they still felt it would be too time consuming	Not reported
Locher, 2020[80]	Qualitative. Semi-structured telephone interviews conducted with 21 programme participants at the conclusion of the programme using an inductive approach	N/A.	19 out of 21 interview participants noted the deliveries were convenient, though 3 participants felt that the study procedures were inconvenient. Most found food deliveries to be of high quality, though 2 observed that fruits and vegetables went bad within days of delivery. All participants recommended continuing or expanding the programme to other pregnant women	24 of 27 (89%)

to the lunchroom.[64] Studies of educational interventions conducted with adults found that they were perceived to be helpful or useful,[48,56,59,72] but some participants felt that the interventions were too lengthy or too much of a time commitment.[49,59] Quantitative surveys found that many participants would recommend the intervention to others,[58,59,66,73] found interventions appropriate or acceptable[49,61,70] and were satisfied with interventions.[60,67,73,74,81] Qualitative studies identified participant suggestions for improving interventions, such as shortening lessons,[59] including tips for maintaining success after the programme,[76] adding games and food tastings,[75] and increasing interaction among participants.[67] Qualitative studies also identified participants' perceived benefits of interventions, such as making behaviour changes,[54] having greater awareness of health issues[56] and using the information learned in lessons in their daily lives.[58,59]

Studies examining nutrition education provided through WIC found mixed results regarding satisfaction with the programme. Two qualitative studies found that participants were satisfied with WIC, especially when served by African American WIC staff.[68,69] In contrast, WIC participants in another publication were dissatisfied with WIC services and saw the programme as intrusive and surveillant.[63] Only one other study of an educational intervention found that participants were dissatisfied and asserted their own knowledge and expertise related to the intervention topic.[71] All of the studies which found that participants were dissatisfied with interventions implemented qualitative research methods.

Retention rates in intervention studies ranged from 40% to 100% of enrolled participants, and all studies included in the review only solicited feedback from participants who completed the intervention. No studies reported satisfaction or feedback from participants who left the intervention or were lost to follow-up. Few ($n = 3$) studies reported reasons for participant dropout: one study reported this was due to behavioural or family reasons,[47] and two due to scheduling conflicts.[49,65]

Discussion

The purpose of this review was to identify and describe the available literature describing African Americans' perceptions of and satisfaction with nutrition education and PSE interventions. Compared with white Americans, African Americans are disproportionately likely to face food insecurity, poverty and obesity,[2,82,83] and to encounter barriers to healthful eating in their food environment which are imposed by structural racism, such as an increased presence of fast food outlets and targeted advertising for unhealthy food.[14,15,84] Nutrition education and PSE change interventions may be able to play a role in reducing racial disparities in nutrition status and food security, but they should also assess whether the interventions are meeting the needs of participants by collecting participant feedback. Research has demonstrated that participant involvement in the design, implementation and evaluation of interventions improves the sustainability of projects, retention of participants and appropriateness of information provided.[25,85]

Our results demonstrated that the majority of articles meeting our inclusion criteria assessed African Americans' satisfaction with interventions consisting of nutrition education alone. Though nutrition education such as that provided by SNAP-Ed and EFNEP has been shown to improve reported food insecurity and overall quality of life,[86–88] education alone is less likely to result in long-term positive health behaviours compared with PSE change interventions and will not be sufficient to address structural racism in African Americans' food environment. Sociologists have identified differences in social and economic resources, such as wealth, income, education and occupational status, as a "fundamental cause" of health disparities.[89,90] Nutrition education which focuses on individual choice and motivation as the only determinants of one's diet may therefore be perceived as unhelpful or patronising in the face of these larger barriers.[71] For example, focus groups with SNAP-Ed-eligible parents in California found that they generally understood how best to feed their families a nutritional diet, but were constrained by their circumstances and environment.[91] Among our results, the only studies which found participants to be dissatisfied with interventions were those implementing nutrition education alone.[63,71] Given the potential for PSE change interventions to better address racial disparities in nutritional status than education alone, future work will need to assess participant satisfaction with and perceptions of nutrition-focused PSE change interventions.

About half of the articles included in our results implemented qualitative methods to assess experiences with a nutrition intervention. Qualitative methods may be best suited to obtain an in-depth understanding of experiences with the interventions, because qualitative methods seek to better understand participants' lived experiences. Researchers have been critical of quantitative surveys of satisfaction because they may not be able to differentiate which part of a service or intervention participants are satisfied with.[31] Participants may also tend to consistently rate satisfaction as high on quantitative surveys, which may obscure dissatisfaction or problems with some aspects of interventions that are revealed in qualitative exploration.[92] Future investigations of satisfaction with nutrition education and PSE interventions should therefore implement qualitative methods to obtain an in-depth understanding of participant experiences.

This review identified a wide range of retention rates for intervention studies and no articles which solicited feedback or perceptions of the intervention from participants who left the intervention. Though studies generally observed positive perceptions of the interventions, bias is introduced when only those who complete the intervention are asked about their perceptions of that intervention.[93] Those who left the intervention are likely to have more comments for improvement of the interventions, and may be more likely to report that they were unsatisfied with the intervention. The lack of input from these participants is a significant limitation of any study reporting that participants were satisfied with the intervention. Future work should seek to collect feedback from those participants who did not participate in an intervention in its entirety or who dropped out from the programme.

An additional notable finding of this review was a lack of relevant grey literature on any SNAP-Ed, EFNEP or

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nutrition-education-focused websites. The lack of guidance or publications from these agencies which describe and address structural racism may be a limitation to progress in this area. These agencies and other funders of nutrition education and PSE change programmes should specifically name health equity and addressing structural racism as a goal of the programme, which may promote more nutrition interventions aimed at addressing the issue among African Americans. Additionally, standards for federally funded nutrition education programmes set by the Child Nutrition Reauthorization and Farm Bill, released every 5 years, should do more to emphasise PSE change work as part of those programmes. PSE change work would be better suited to address the challenge of structural racism experienced by African Americans.

Other marginalised populations in the United States, such as Native Americans and Hispanic Americans, also experience increased rates of poverty, food insecurity and obesity, and researchers have called for efforts to address these disparities.[22,23,94] Nutrition interventions in these populations should also assess participants' experiences in the intervention and whether participants are satisfied. However, no other scoping reviews have been published to date which examine the satisfaction with nutrition education and/or PSE interventions among these populations in the United States. Reviews have examined 'culturally adapted' or 'culturally tailored' nutrition education and health promotion interventions in Hispanic and Indigenous populations,[95–97] but did not include measures of whether the participants were satisfied with the interventions or their feedback about the interventions. Additional literature reviews are therefore warranted to describe participant satisfaction with nutrition education and PSE interventions in other marginalised populations.

Limitations

While our search was guided by a research librarian (R.L.M.), it was limited to five databases of peer-reviewed literature. These databases were selected on the basis of the interdisciplinary nature of this investigation, but there may have been additional articles available in other databases that were not included in this review. Additionally, the grey literature search was limited to a search of one database of dissertation and theses. There may be additional dissertations and theses related to the subject that were not available in this database.

Our inclusion criteria for this review included only interventions in the implementation stage, not formative research conducted to develop interventions. This excluded studies which addressed African Americans' perceptions of interventions while those interventions were being developed. A future review could address findings of formative research conducted among African Americans to develop nutrition education and nutrition-focused PSE change interventions.

There are numerous issues with the measurement of satisfaction, especially when measured with a quantitative survey.[31,32] The results of quantitative studies included in this review may therefore inaccurately reflect participants' true perceptions of nutrition interventions. Additionally, results obtained by qualitative studies may also be impacted by circumstances such as interviewees' relationship with interviewers and the setting in which interviews were conducted, which may have affected the results obtained by studies included in this scoping review. Another issue is the variation in retention rates and the lack of any studies which assessed the satisfaction of people who dropped out of the intervention. This limits the ability of studies to conclude that participants were satisfied and also precludes the collection of valuable information from the participants who left the intervention that could improve those interventions. The findings of this scoping review are therefore seriously limited by the information provided in the included studies, their measurements of satisfaction and the populations from which this information was solicited.

Conclusion

To best address the increased rates of obesity and food insecurity experienced by African Americans, nutrition education and PSE interventions should determine whether participants are satisfied with the intervention and obtain an in-depth understanding of participant experiences with the intervention. This scoping review has described the available literature reporting African Americans' satisfaction with and/or perceptions of nutrition interventions. Few studies meeting our inclusion criteria examined PSE interventions, and future work should address this gap in the literature. Qualitative methods may prove particularly useful in obtaining an in-depth understanding of participants' experience with nutrition interventions, given that the studies included in our review which found that participants were not satisfied with interventions were all conducted using qualitative methods. Because African Americans experience high rates of obesity and food insecurity and encounter structural barriers to healthy eating in their food environment, researchers should address the identified gaps in the literature if they seek to serve this population adequately.

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Conflict of Interest

None.

Authorship

M.G., D.H. and R.M. conceptualised the review. M.G. and R.M. designed the search strategy. M.G. and D.H. independently performed the initial title and abstract screen and the full-text screen for inclusion. M.G., B.H., C.S., M.D.M. and D.B. performed data extraction. M.G. wrote the first draft of the manuscript with contributions from R.M. All authors contributed to, reviewed, edited and commented on subsequent drafts of the manuscript.

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