
Scoping Review Protocol: Food Insecurity among African Americans in the United States, A Scoping Review.

Authors: Elizabeth Dennard, Elizabeth Kristjansson, Nedelina Tchangelova, Sarah Totton, Donna Winham, and Annette O'Connor

Submitted to the Coordinating Group of:

Crime and Justice

Education

Disability

International Development

Nutrition

Food Security

Social Welfare

Methods

Knowledge Translation and Implementation

Business and Management

Other:

Plans to co-register:

No

Yes Cochrane Other

Maybe

Date submitted: TBD

Date revision submitted: TBD

Approval date: TBD

Publication date: TBD

1 **Background**

2 As of 2018, 14.3 million households experienced food insecurity and 5.6 million
3 households experienced very low food security at some time during the year in the
4 United States. This census data was collected by the U.S. Department of Commerce,
5 U.S. Census Bureau, 2018 Current Population Survey Food Security Supplement
6 (Coleman-Jensen et al., 2019). This annual food security survey comprised a
7 representative sample of 130 million households in the United States. The prevalence
8 of food insecurity is thought to vary among these households with distinct
9 demographic characteristics (race, ethnicity, income, area of residence, and geographic
10 region). In 2018, the estimated rates of food insecurity were higher than the national
11 average for Black non-Hispanic households (21.2%) and households with incomes
12 below 185% of the federal poverty line (29.1%) (Coleman-Jensen et al., 2019).

13
14 In the United States, ethnic minority households often exhibit a greater risk of food
15 insecurity, while African American households are estimated to be two to three times
16 as likely to experience consistent food insecurity when compared to the general
17 population (Kamdar et al., 2018; Laraia et al., 2009). A cross-sectional study,
18 conducted in Baltimore, Maryland, recruited households from low-income,
19 predominantly African American, neighbourhoods and found that the rate of food
20 insecurity (41.6%) was 1.7 times that of households headed by Black individuals and
21 three times the levels presented in the general U.S. population (Vedovato et al., 2015).
22 These findings indicate that race is associated with food insecurity. African American
23 populations have unique experiences and therefore the risk factors for food insecurity
24 within this population may also be unique. Many individual- and group-level factors
25 other than race have been investigated for an association with food insecurity. For
26 example, group-level factors such as region (urban vs. rural) have been linked to the
27 prevalence of food insecurity. Similarly, individual-level characteristics such as
28 depression and obesity have been linked to the prevalence of food insecurity
29 particularly among African Americans in the United States (Franklin et al., 2011;
30 Meyers et al., 2019). Due to the increased prevalence of food insecurity and its
31 negative health outcomes, we propose to investigate factors that have been identified
32 in the body of literature related to food insecurity within adult African American

33 populations. The results of this investigation will provide insights into understudied
34 areas, which can inform future research. Further, the investigation will provide
35 documentation where sufficient data are available to synthesize the research formally
36 using systematic review methods to inform policy.

37

38 Current measures of food insecurity are diverse and often unclear when compared
39 across the literature because some studies apply detailed questionnaires to measure
40 food insecurity while others may refer to broad indicators based on hypothesized
41 determinants presented in the literature (Jones et al., 2013). One of the most
42 commonly used metrics is from the U.S. Department of Agriculture’s Economic
43 Research Service which implements standardized questionnaires to measure food
44 insecurity among households, adults, and children (ages 12 and older) in the United
45 States. These questionnaires include the U.S. Household Food Security Survey Module
46 (18 items), with Spanish and Chinese translation, the U.S. Adult Food Security Survey
47 Module (10 items), the Six-Item Short Form of the Food Security Survey Module, the
48 Self-Administered Food Security Module for Youths Ages 12 and Older, and the CPS
49 Food Security Supplements Questionnaire (USDA, 2019). A few examples of non-
50 USDA metrics include (1) the Food Insecurity Experience Scale (FIES), which serves
51 as an experience-based food insecurity scale and contains four scales based on hunger
52 and household access; (2) the Prevalence of Undernourishment (PoU) indicator, which
53 is used to understand access to food in terms of dietary inadequacy; (3) the Household
54 Dietary Diversity Score (HDDS), which collects household dietary diversity to serve as
55 a proxy measure of household food access; and (4) the Food Consumption Score, which
56 aggregates household-level data based on the diversity and frequency of food groups
57 consumed over a period of time (FANTA, 2018; INDDEx Project, 2018).

58

59 One of the purposes of reviewing the literature is to identify sources of heterogeneity
60 that might explain discordant findings. With food insecurity, the application of diverse
61 food insecurity metrics might create differences in findings across studies that are
62 attributable to varied measurements of the outcome of interest rather than differences
63 in exposures. According to Ashby et al., “accurate measurement of food insecurity is
64 imperative to understand the magnitude of the issue and to identify specific areas of
65 need, in order to effectively tailor policies and interventions for its alleviation” (Ashby
66 et al., 2016). For this reason, we will identify factors that have been evaluated for an

67 association with food insecurity and summarize the approaches to measuring food
68 insecurity among African American adults in the United States.

69 **Objectives**

70 The purpose of this scoping review is twofold. First, we propose to identify which
71 factors have been investigated for an association with food insecurity among African
72 Americans in the literature. Knowledge of these factors will help identify research gaps
73 and highlight areas for future research. Second, we intend to describe how food
74 insecurity is measured in studies that have evaluated food insecurity in African
75 American populations in the United States. By understanding the dimensions of food
76 insecurity considered by authors, we propose to understand and provide guidance
77 about approaches to the synthesis of results from studies about food insecurity. This
78 scoping review will identify current data gaps that exist in the literature and inform
79 current understandings of food insecurity. This scoping review is motivated by the
80 following questions:

- 81 ▪ Which factors or characteristics have been evaluated in the literature for an
82 association with food insecurity among African American adults in the United
83 States?
- 84 ▪ How is food insecurity defined and measured among individuals in this
85 population?
- 86 ▪ Which dimensions of food insecurity are captured by the food insecurity metrics
87 employed by authors?

88 **Methodology**

89 The methodology for our scoping review is informed by the article, *Systematic Review*
90 *or Scoping Review? Guidance for Authors when Choosing between a Systematic or*
91 *Scoping Review Approach*, by Munn et al. (2018). This citation describes the key
92 differences between systematic reviews and scoping reviews to provide clear guidance
93 for when a scoping review is an appropriate tool for evidence synthesis. Scoping
94 reviews determine the scope or coverage of a body of literature on a given topic while
95 systematic reviews utilize explicit methods to synthesize study results, minimize bias,
96 and inform future research (Munn et al., 2018). The aims of scoping reviews are:

- 97 ▪ To identify the types of available evidence
- 98 ▪ To clarify key concepts and definitions in the literature
- 99 ▪ To examine how research is being conducted
- 100 ▪ To identify key characteristics related to a concept
- 101 ▪ To identify knowledge gaps
- 102 ▪ To serve as a precursor to a systematic review

103 Scoping reviews do not produce critically appraised or synthesized results for a given
104 research question. Therefore, an assessment of the methodological limitations or risk
105 of bias of the evidence included within a scoping review is not required (Munn et al.,
106 2018). Most definitions of internal validity involve an evaluation of the methodological
107 characteristics of the relevant study through its design and conduct to prevent
108 systematic errors or bias. Studies with more sound methodological characteristics are
109 often more likely to produce results that are closer to the true result, as they are less
110 prone to bias or distortions from the true value (Ryan et al., 2013). Scoping reviews do
111 not require the consideration of outcome data, unambiguous criteria for interventions
112 and comparators, potential adverse effects, study quality, risk of bias, or supporting
113 judgements presented in the literature.

114 **Eligibility Criteria and Study Designs**

115 The following published studies will be eligible for inclusion:

- 116 ▪ Primary research studies with a concurrent comparison group, as our interest is
117 in factors associated with food insecurity. Therefore, designs of interest are
118 observational studies (cross-sectional, cohort, and case control) and
119 randomized controlled trials; however, we expect none of the latter.
- 120 ▪ Primary research studies that have evaluated factors between time periods
121 (before and after). We do not intend to exclude intervention studies.
- 122 ▪ Studies published in English after 1995. The rationale for this starting point is
123 that the USDA began collecting data annually regarding food access, food
124 spending, and sources of food assistance in the United States in 1995. Therefore,
125 this regulatory activity represents a reasonable starting point for relevant
126 studies.

127 **Eligible Participants of Interest**

128 The participants of studies relevant to this scoping review are native born Black or
129 African American adults. We consider adults to be 18 to 64 years of age. Ineligible
130 participants include non-African Americans, children (individuals 17 years of age or
131 younger), elderly adults (65 years of age or older), individuals who reside in other
132 countries, and Black immigrant or refugee populations. If a study contains a subset of
133 a sample that matches our population of interest, we will include the subset of
134 participants for this scoping review if the data about that population can be extracted.

135
136 One possible source of ambiguity in our study population is the definition of Black
137 African American populations. To differentiate between these populations, the
138 population of interest for this scoping review is based on the individual characteristics
139 of study participants (race, ethnicity, and immigration status). The U.S. Census Bureau
140 adheres to the 1997 Office of Management Budget (OMB) standards on race and
141 ethnicity, which includes five race categories: Asian, Black or African American, Native
142 Hawaiian or Pacific Islander, American Indian or Alaska Native, and White (U.S.
143 Census Bureau, 2018). This classification scheme emphasizes the geographic region of
144 an individual's ancestry, but it does not address ethnicity which can include cultural
145 tradition, common history, religion, and a shared genetic heritage (Burchard et al.,
146 2003). This distinction between race and ethnicity is relevant to our scoping review
147 because we intend to include study participants who identify as African American in
148 the available literature using the U.S. Census Bureau definition.

149
150 Immigration status is another key factor that may impact the definition of the study
151 population of interest. The U.S. Census Bureau defines native born population
152 members as individuals who were born in the United States, Puerto Rico, a U.S. Island
153 Area (Guam, the Commonwealth of the Northern Mariana Islands, and the U.S.
154 Virginia Islands), or abroad to a U.S. citizen parent or parents. (U.S. Census Bureau,
155 2019). The term "foreign born" refers to all individuals born outside of the United
156 States, which includes naturalized U.S. citizens, lawful permanent residents
157 (immigrants), temporary migrants (foreign students), humanitarian migrants
158 (refugees), and unauthorized migrants (U.S. Census Bureau, 2019). We will exclude
159 foreign born Black and African adults from our eligible participants of interest. We will
160 include studies that measure variables among study participants who identify as

161 “Black” Americans living in the United States even if the term “African American” is
162 excluded from the text. The rationale for these exclusion criteria is that the issues
163 related to food insecurity likely differ by age, ethnicity, race, and immigration status.
164 Our scoping review is not intended to serve as a comparison of age, ethnicity, race, or
165 immigration status but to investigate the single population of interest i.e., African
166 American adults.

167 **Eligible Outcomes of Interest**

168 We anticipate that some authors may use the following terms to describe food
169 insecurity: food availability, food accessibility, food utilization, food supply, food
170 intake, undernourishment, food deprivation, hunger, malnutrition, and use of Food
171 Assistance Programs. We will include these proxy variables of food insecurity (food
172 availability, accessibility, and utilization) as outcomes of interest due to the variety of
173 measures identified in the literature. For this review, our primary outcome of interest
174 is food insecurity. Food insecurity is defined as “the limited or uncertain availability of
175 nutritionally adequate and safe foods, or the limited or uncertain ability to acquire
176 foods in socially acceptable ways” (USDA, 2019). In 2006, the USDA introduced new
177 labels to describe varying levels of food insecurity that range from (1) high food
178 security, no reported indications of food-access limitations, to (4) very low food
179 security, reports of multiple indications of disrupted eating patterns and reduced food
180 intake, with (2) marginal food security and (3) low food security serving as
181 intermediate ranges (USDA, 2018).

182 **Eligible Exposures of Interest**

183 Our intention is to determine the risk factors that researchers are investigating related
184 to food insecurity in our study population of interest. We acknowledge that risk factors
185 or correlates of food insecurity identified in this review may have a null or protective
186 association. Based on our preliminary search, we anticipate that exposure measures or
187 risk factors for food insecurity may include individual characteristics such as age,
188 gender (social), sex (biological), ethnicity, religion, socioeconomic status (SES),
189 income, education, employment status, marital status, family structure (single- vs.
190 multi- parent), number of dependents, ability or disability status, mental health status,
191 fruit and vegetable intake, Body Mass Index (BMI), smoking status, chronic disease
192 status, and access to care (child, elder, or other dependent). Additional factors of

193 interest may include group-level characteristics such as region, neighbourhood type,
194 number of food stores near residence, residential infrastructure, car ownership,
195 primary mode of transportation, and proximity to public transportation. Also, we will
196 identify all exposure characteristics or risk factors for food insecurity and categorize
197 these terms into three domains (availability, accessibility, and utilization) which are
198 identified in the four hierarchical dimensions of food insecurity: food availability, food
199 accessibility, food utilization, and food stability (FAO, 2008). According to Ashby et al.
200 2016, "food availability" refers to a reliable and consistent source of enough quality
201 food for an active and healthy lifestyle. "Access" acknowledges the resources required
202 in order to obtain and put food on the table; this could be economic or physical.
203 "Utilization" refers to the intake of safe food and the human resources required to
204 transform food into meals. "Stability" recognizes that food insecurity can be transitory,
205 cyclical, or chronic (Ashby et al., 2016). Ultimately, food stability can be achieved when
206 all three domains (availability, accessibility, and utilization) become sustainable over
207 an extended period. For this reason, we will exclude this dimension from the
208 categorization of individual-level and group-level exposure characteristics.

209

210 In addition to the categorization of risk factors into food insecurity dimensions, we will
211 identify whether a risk factor appears to be a "cause" or "consequence" of food
212 insecurity or "both." For example, a study participant's income could serve as a risk
213 factor that increases their risk of experiencing food insecurity due to lack of food
214 accessibility, while malnutrition could serve as a "consequence" of experiencing food
215 insecurity. If a risk factor identified in the study serves as "consequence" of food
216 insecurity, we will not categorize this term into the food insecurity dimensions for risk
217 factors (availability, accessibility, and utilization). If the risk factor falls into either the
218 "cause" category or "both", we will categorize the risk factor based on the three food
219 insecurity dimensions described above. For example, a study participant's mental
220 health status or "depression score" could serve as both a "cause" of food insecurity due
221 to lack of food accessibility or it could serve as a "consequence" of experiencing food
222 insecurity due to lack of food utilization. For this review, we are only interested in
223 evaluating studies that assess the causes or risk factors of food insecurity or food
224 insecurity proxy measures (food availability, accessibility, and utilization), where food
225 insecurity serves as the outcome in the study. We are not interested in evaluating

226 studies that examine consequences of food insecurity, or where food insecurity serves
227 as the exposure variable of interest.

228 **Existing scoping reviews**

229 Based on a preliminary search of the literature, there appear to be no existing scoping
230 reviews or systematic reviews available that summarize factors investigated for an
231 association within food insecurity in adult African American populations. We
232 conducted a search through the Web of Science™ (Core Collection) to identify food
233 security and food insecurity scoping reviews. The results of this search, which did not
234 apply limits to languages, years, and document types, can be found in (*Table 1*).
235 Relevance screening was conducted by one author, (ED), who identified nine
236 potentially relevant reviews (*Figure 1*) although upon evaluation of the full text none
237 were duplicative of the proposed scoping review.

238 *Table 1: Preliminary Search for Existing Food Insecurity Scoping Reviews.*

Set Number	Results	Search Description
5	139	#4 AND #1
4	31,641	#3 OR #2
3	27,681	(ts = “food security”)
2	7,481	(ts = “food insecurity”)
1	27,646	(ts = “scoping review”)

239

1. Schwartz et al. (2019). Disability and food access and insecurity: A scoping review of the literature. DOI: 10.1016/j.healthplace.2019.03.011
2. Maynard et al. (2019). The Experience of Food Insecurity Among Immigrants: A Scoping Review. DOI: 10.1007/s12134-018-0613-x
3. De Marchis et al. (2019). Identifying Food Insecurity in Health Care Settings: A Systematic Scoping Review of the Evidence. DOI: 10.1097/FCH.000000000000208
4. Russell et al. (2018). Assessing Food Security Using Household Consumption Expenditure Surveys (HCES): A Scoping Literature Review. DOI: 10.1017/S136898001800068X
5. McKay and Gahagan (2018). Food Insecurity Among Older Adults in Canada and Considerations for Gendered Analysis: A Scoping Review. DOI: N/A
6. Walch et al. (2018). A Scoping Review of Traditional Food Security in Alaska. DOI: 10.1080/22423982.2017.1419678
7. Misselhorn and Hendriks (2017). A Systematic Review of Sub-National Food Insecurity Research in South Africa: Missed Opportunities for Policy Insights. DOI: 10.1371/journal.pone.0182399
8. Ashby et al. (2016). Measurement of the Dimensions of Food Insecurity in Developed Countries: A Systematic Literature Review. DOI: 10.1017/S1368980016001166
9. Morais et al. (2014). Food Insecurity and Anthropometric, dietary and social indicators in Brazilian studies: A Systematic Review. DOI: 10.1590/1413-81232014195.13012013

241

242 **Search Strategy and Methods**

243 One author (ED) explored the literature to identify relevant key terms. After consulting
244 with a librarian (NT), additional key terms were identified for the main concepts “food
245 insecurity” and “African Americans” in Appendix A (Table 3). We did not limit the
246 results to study methodology because this will result in missing relevant studies due to
247 a large variety of terms used to describe study types; many authors also do not mention
248 methodologies in title and abstracts. The search strategy was checked against the
249 *PRESS Peer Review of Electronic Search Strategies Guidelines (McGowan et al.,*
250 *2016).*

251

252 On November 18, 2019 a comprehensive literature search for relevant studies was
253 conducted using six databases: Pubmed (US National Library of Medicine), EBSCO
254 databases (CINAHL Plus, MEDLINE, PsycINFO, Health Source: Nursing/Academic
255 Edition), and Web of Science. Pubmed and MEDLINE (EBSCO) contain the same
256 information but they differ in their search interfaces. To ensure that we capture the
257 most evidence as possible, we changed the search strategies slightly. For example,
258 Pubmed does not handle proximity searching and truncation is limited to the first 600
259 variations; Medline (EBSCO) interface allows (1) for greater flexibility in constructing
260 the search strategy using proximity operators and truncation, and (2) for a better
261 balance between precision and sensitivity of results (Duffy et al., 2016). Search
262 strategies for each database and corresponding results are shown in Appendix B (*Table*
263 *4; Table 5; Table 6*). Results were restricted to publication year 1995-2019, English
264 language, and peer reviewed publications. The rationale for this restriction is that the
265 USDA began collecting data annually regarding food access, food spending, and
266 sources of food assistance in the United States in 1995. Therefore, this regulatory
267 activity represents a reasonable starting point for relevant studies. Reference lists of
268 the included primary articles and retrieved systematic reviews will be examined to
269 identify any relevant publications. DistillerSR software will be used for article
270 screening and data extraction.

271 **Data Management**

272 Search results will be uploaded into Endnote Desktop and duplicate records will be
273 removed. The total number of articles, number of duplicates, and number of eligible
274 studies will be reported through PRISMA Flow chart.

275 **Study Selection Strategy**

276 Title/abstract and full-text screening for eligibility will be performed by two authors in
277 a review management software program, DistillerSR®. All reviewers will receive
278 training prior to the screening process using piloted forms and discussion until
279 agreement about interpretation is reached. We propose to pilot the forms with at least
280 100 records. The proposed questions are as follows:

281

282 **Title and abstract screening:** Title/Abstract screening will be performed using the
283 following questions, with response options “yes”, “no”, or “unclear”:

- 284 1. Is the title/abstract available in English?
285 a. Yes, include and proceed to next question;
286 b. No, exclude and specify language _____
- 287 2. Is the primary research study describing food (in)security metrics among
288 African American adults in the United States?
289 a. Yes, include and proceed to full-text screening;
290 b. No, exclude
291 c. Unclear, proceed to full-text screening;

292 **Full-text screening:** Full-text screening will be performed using the following
293 questions, with response options “yes” or “no”:

- 294 1. Is the full text available in English?
295 a. Yes, include and proceed to next question;
296 b. No, exclude and specify language _____
- 297 2. Does the full-text article describe a primary research study?
298 a. Yes, include and proceed to next question;
299 b. No, exclude;
- 300 3. Does the full-text article include the population of interest (African American
301 adults in the United States)?
302 a. Yes, include/proceed to next question;
303 b. No, exclude;
- 304 4. Does the full-text article evaluate individual/household food security?
305 a. Yes, include and proceed to next question;
306 b. No, exclude;
- 307 5. Does the full text evaluate food (in)security or potential metrics of food
308 insecurity such as availability, supply, intake, deprivation, utilization, or use of
309 Food Assistance Programs?
310 a. Yes, include and proceed to next question;
311 b. No, exclude;
- 312 6. Does the study design have a comparison group?
313 a. Yes, include and proceed to next question;

- 314 b. No, exclude;
- 315 7. Does the study assess individual- or group-level factors associated with food
- 316 insecurity?
- 317 a. Yes, proceed to data extraction;
- 318 b. No, exclude;

319

320 Relevant text publications will be acquired through available University of Maryland

321 and Iowa State University library resources.

322 **Data Extraction Strategy**

323 The following information will be extracted from each study by two reviewers working

324 independently.

325 **1. General Study Characteristics:**

- 326 ▪ Publication year

327 **2. Study Population:**

- 328 ▪ State and region (urban or rural) in which the population of interest
- 329 resides
- 330 ▪ Age distribution of the population of interest
- 331 ▪ Number of participants of the population of interest in the study

332 **3. Study design**

- 333 ▪ Observational Studies:

- 334 a. Case control: studies which enrol participants
- 335 based on food insecurity status and then compare
- 336 exposures measured concurrently or
- 337 retrospectively.
- 338 b. Cohort (or longitudinal): studies which enrol a
- 339 population at risk of being food insecure and follow
- 340 the participants over time to compare the risk of
- 341 the outcome at the end of follow-up. Participants
- 342 may be enrolled based on a particular risk factor or
- 343 population-based approach.
- 344 c. Cross-sectional: studies which enrol using a
- 345 population-based approach at a single point. These
- 346 studies determine the prevalence of food insecurity

347 at enrolment and then compare the prevalence of
348 food insecurity for exposures measured
349 concurrently or retrospectively

350 d. **Controlled Before-and-After (CBAs)**: studies that
351 involve a single population, where a characteristic
352 is changed at a single time point (either calendar or
353 characteristics-based), then the prevalence of food
354 insecurity is compared before and after the change.
355 An example of this study design may include the
356 prevalence of food insecurity before and after the
357 introduction of a new bus service or supermarket in
358 a neighbourhood. A characteristic-based event
359 might be a study that looks at food insecurity in
360 individuals before and after purchasing a car. In
361 the bus example, the exposure happens at the same
362 time on the calendar for all individuals; however,
363 for the car example, the purchasing of the car is an
364 individual event.

- 365 ■ **Ecological**: studies that investigate factors or exposures among members
366 of an entire population, defined geographically or temporally, but do not
367 determine a relationship or association between the exposure and
368 outcome of interest. An example of this study design may include the
369 proportion of households within a neighbourhood that experience food
370 insecurity, but the association between a given households' access to
371 supermarkets and the outcome are not evaluated.
- 372 ■ **Randomized controlled trials (RCT)**: studies that randomly assign study
373 participants to two or more groups, to reduce bias, and then measure or
374 compare findings presented in each group. An example of this study
375 design may include two groups of participants, one receiving weekly
376 grocery deliveries from a local food bank and the other receiving none,
377 that measure BMI and level of food insecurity at the start and conclusion
378 of the study.

379

380 **4. Outcomes Investigated:** We will identify all metrics of food insecurity
381 reported by the authors and extract the level at which the metric is calculated
382 and the authors' exact definition of the food insecurity metric. The outcomes
383 used by authors are of interest to our review and part of the discovery process;
384 however, we anticipate that metrics of food insecurity will include the common
385 metrics from agency groups such as the following:

386 ▪ USDA Metrics:

- 387 ○ the U.S. Household Food Security Survey Module
- 388 ○ the U.S. Adult Food Security Survey Module
- 389 ○ the Six-Item Short Form of the Food Security Survey Module
- 390 ○ the Self-Administered Food Security Module for Youths Ages 12 and
391 Older
- 392 ○ the CPS Food Security Supplements Questionnaire

393 ▪ Non-USDA Metrics:

- 394 ○ the Food Insecurity Experience Scale (FIES)
- 395 ○ the Prevalence of Undernourishment indicator (PoU)
- 396 ○ the Household Dietary Diversity Score (HDDS)
- 397 ○ the Food Consumption Score (FCS)

398 We also expect that some researchers will only report single metrics or unique
399 combinations of single metrics rather than the standardized measures listed above. For
400 example, some authors might ask “How often do you skip meals?” and use a threshold
401 value as a single metric for food insecurity. These outcome metrics might then be used
402 at the individual level to represent the experiences, behaviours, or conditions of an
403 individual or a single household (Coleman-Jensen et al., 2019). Alternatively, these
404 metrics might be aggregated to represent a group at the ecological or group level. For
405 example, a study might report the proportion of households in a region that skip meals
406 more than twice in one week or the proportion of households in a neighbourhood with
407 a cut-off listed in the USDA 18-item questionnaire.

408
409 **5. Exposures Investigated:** We will extract all exposures investigated among
410 adult African American populations identified in the literature. This report will
411 identify factors that are investigated at the individual- and group-level. As this
412 is a scoping review, and the goal of the review is to identify the diversity of

413 factors authors are investigating, we only intend to provide examples of what we
 414 might extract.

- 415 ▪ Individual-level: examples might include age, gender (social), sex
 416 (biological), religion, socioeconomic status (SES), income, education,
 417 employment status, marital status, family structure (single- vs. multi-
 418 parent), number of dependents, ability, mental health status, Body Mass
 419 Index (BMI), smoking status, chronic disease status, car ownership, and
 420 access to care (child, elder, or other dependent).
- 421 ▪ Group-level: examples might include region, neighbourhood type,
 422 number of food stores near residence, residential infrastructure, primary
 423 mode of transportation, and proximity to public transportation.

424
 425 *Table 2: Categorization of Risk Factors into Dimensions of Food Insecurity*

Dimensions		
Availability	Accessibility	Utilization
Region (urban/rural)	Age	Fruit and vegetable intake
Number of food stores near residence	Sex (biological) and Gender (social)	Use of food assistance programs
Residential infrastructure	Socioeconomic status (SES)	Use of food banks and pantries
No supermarket within 5 miles	Income and Employment status	
Low supermarket density	Religion	
Neighborhood type	Marital status	
	Family structure	
	Number of dependents	
	Education	
	Ability status	
	Mental health status	
	Body Mass Index (BMI)	
	Chronic disease status	
	Access to care	
	Car ownership	
	Proximity to public transportation	

426
 427 For this review, we will identify potential risk factors of food insecurity and categorize
 428 them based on three of the four hierarchical dimensions of food insecurity: food
 429 availability, food accessibility, and food utilization (Ashby et al., 2016). In addition to
 430 the categorization of risk factors into these dimensions, we will identify whether a risk
 431 factor appears to be a “cause” and/or “consequence” of food insecurity in the literature.
 432 This information will enable us to comment on how comprehensively authors are

433 capturing factors associated with food insecurity in study populations and identify
434 important gaps in the literature. Also, we intend to map these factors at the individual
435 or group level. For example, income and car ownership are individual risk factors that
436 could impact accessibility i.e., the food is available but not accessible due to income. At
437 the group level, lack of public transportation and high crime rates could impact
438 accessibility, while lack of supermarkets in one's neighbourhood or area of residence is
439 a group-level variable that could impact availability. We do not anticipate that each
440 exposure will map to only one dimension. For example, a risk factor such as chronic
441 disease might be considered to result in food insecurity due to both accessibility due to
442 the inability to shop or utilization due to both accessibility and inability to prepare food.
443 We will also identify risk factors that appear to not fall into any of the three proposed
444 domains of food insecurity. An example of the output is provided in Table 2.

445

446 **Critical appraisal**

447 As this is a scoping review, we will not conduct a critical appraisal of the literature.

448 **Results**

449 We will generate a summary of study characteristics, study designs, study population
450 characteristics, exposures and outcomes investigated, food insecurity definitions, and
451 food insecurity measures. Figures and tables will be used to report results of the
452 scoping review. These figures will tabulate the frequency of areas of evaluation, study
453 types, and the timeline of investigation. This scoping review will provide a synthesis of
454 primary research investigating factors linked to food insecurity, how food insecurity is
455 being measured among African American adults in the United States, and the domains
456 of food insecurity investigated. Results from this review can be used to clarify key
457 concepts and definitions linked to food insecurity, indicate how food insecurity
458 research is being conducted, indicate how this outcome is being measured among
459 African American adults, and present knowledge gaps that exist in the literature. By
460 understanding the dimensions of food insecurity, we propose to understand and
461 provide guidance about approaches to the synthesis of results from studies about food
462 insecurity.

463

464

465 **References**

- 466 Ashby, Stephanie, Kleve, Suzanne, McKechnie, Rebecca, and Palermo, Claire. (2016).
467 Measurement of the Dimensions of Food Insecurity in Developed Countries: A
468 Systematic Review. *Public Health Nutrition*, 19(16). 2887-2896. DOI:
469 10.1017/S1368980016001166
- 470 Burchard, Esteban G., Ziv, Elad, Cyle, Natasha, Gomez, Scarlett L., Tang, Hua,
471 Karter, Andrew, Mountain, Joanna L., Perez-Stable, Eliseo J., Sheppard, Dean,
472 and Risch, Neil. (2003). The Importance of Race and Ethnic Background in
473 Biomedical Research and Clinical Practice. *The New England Journal of*
474 *Medicine*, 348(12). <https://www.nejm.org/doi/full/10.1056/NEJMsbo25007>
- 475 Coleman-Jensen, Alisha, Rabbitt, Matthew P., Gregory, Christina A., and Singh,
476 Anita. (2019). Household Food Security in the United States in 2018. *Economic*
477 *Research Report-United States Department of Agriculture*, Economic Research
478 Service. [https://www.ers.usda.gov/webdocs/publications/94849/err-](https://www.ers.usda.gov/webdocs/publications/94849/err-270.pdf?v=963.1)
479 [270.pdf?v=963.1](https://www.ers.usda.gov/webdocs/publications/94849/err-270.pdf?v=963.1)
- 480 Duffy, S., de Kock, S., Misso, K., Noake, C., Ross, J., & Stirk, L. (2016). Supplementary
481 searches of PubMed to improve currency of MEDLINE and MEDLINE In-Process
482 searches via Ovid. *Journal of the Medical Library Association: JMLA*, 104(4),
483 309–312. <https://doi.org/10.3163/1536-5050.104.4.011>
- 484 Food and Agriculture Organization (FAO). (2008). An Introduction to the Basic
485 Concepts of Food Security. *The EC-FAO Food Security Programme*.
486 <http://www.fao.org/3/al936e/al936e00.pdf>
- 487 Food and Nutrition Technical Assistance (FANTA). (2018). Household Dietary
488 Diversity Score (HDDS) for Measurement of Household Food Access: Indicator

489 Guide. *Monitoring and Evaluation*. <https://www.fantaproject.org/monitoring->
490 [and-evaluation/household-dietary-diversity-score](https://www.fantaproject.org/monitoring-and-evaluation/household-dietary-diversity-score)

491 Franklin, Brandi, Jones, Ashley, Love, Dejuan, Puckett, Stephane, Macklin, Justin,
492 and White-Means, Shelley. (2012). Exploring Mediators of Food Insecurity and
493 Obesity: A Review of Recent Literature. *Journal of Community Health*. 37(1).
494 253-264. [https://link-springer-com.proxy-](https://link-springer-com.proxy-um.researchport.umd.edu/article/10.1007/s10900-011-9420-4)
495 [um.researchport.umd.edu/article/10.1007/s10900-011-9420-4](https://link-springer-com.proxy-um.researchport.umd.edu/article/10.1007/s10900-011-9420-4)

496 International Diversity Data Expansion Project (INDDEX). (2018), Data4Diets:
497 Building Blocks for Diet-related Food Security Analysis. Tufts University,
498 Boston, MA. <https://inddex.nutrition.tufts.edu/data4diets>.

499 Jones, Andrew D., Ngure, Francis M., Pelto, Gretel, and Young, Sera L. (2013). What
500 are we Assessing when we Measure Food Security? A Compendium and
501 Review of Current Metrics. *Advances in Nutrition*. 4. 481-505.
502 [http://www.fao.org/fileadmin/templates/ess/documents/meetings_and wor](http://www.fao.org/fileadmin/templates/ess/documents/meetings_and_workshops/cfs40/001_What_Are_We_Assessing_When_We_Measure_Food_Security.pdf)
503 [kshops/cfs40/001_What_Are_We_Assessing_When_We_Measure_Food_Se](http://www.fao.org/fileadmin/templates/ess/documents/meetings_and_workshops/cfs40/001_What_Are_We_Assessing_When_We_Measure_Food_Security.pdf)
504 [curty.pdf](http://www.fao.org/fileadmin/templates/ess/documents/meetings_and_workshops/cfs40/001_What_Are_We_Assessing_When_We_Measure_Food_Security.pdf)

505 Kamdar, Nipa, Rozmus, Cathy L., Grimes, Deanna E., and Meininger, Janet C.
506 (2018). Ethnic/Racial Comparisons in Strategies Parents Use to Cope with Food
507 Insecurity: A Systematic Review of Published Research. *Journal of Immigrant*
508 *and Minority Health* (21). 175-188. <https://doi.org/10.1007/s10903-018-0720-y>

509 Laraia, Barbara A., Borja, Judith B., and Bentley, Margaret E. (2009). Grandmothers,
510 Fathers and Depressive Symptoms are Associated with Food Insecurity among
511 Low Income First-Time African American Mothers in North Carolina. *The*
512 *American Dietetic Association*, 109(6). DOI:10.1016/j.jada.2009.03.005.

513 McGowan, J., Sampson, M., Salzwedel, D. M., Cogo, E., Foerster, V., & Lefebvre, C.
514 (2016). PRESS Peer Review of Electronic Search Strategies: 2015 Guideline
515 Statement. *Journal of Clinical Epidemiology*, 75, 40–46.
516 <https://doi.org/10.1016/j.jclinepi.2016.01.021>

517 Meyers, Neely, Sood, Anubha, Alolayan, Yazeed, Broussard, Beth, Fox, Katherine,
518 King, Kelly, LoGalbo, Elizabeth, Thompson, Leea, and Compton, Michael T.
519 (2019). Coping with Food Insecurity Among African American in Public-Sector
520 Mental Health Services: A Qualitative Study. *Community Mental Health*
521 *Journal*. 55(3). 440-447. [https://link-springer-com.proxy-](https://link-springer-com.proxy-um.researchport.umd.edu/article/10.1007/s10597-019-00376-x)
522 [um.researchport.umd.edu/article/10.1007/s10597-019-00376-x](https://link-springer-com.proxy-um.researchport.umd.edu/article/10.1007/s10597-019-00376-x)

523 Munn, Zachary, Peters, Micha D., Stern, Cindy, Tufanaru, Catalin, McArthur, Alexa,
524 and Aromataris, Edoardo. (2018). Systematic Review or Scoping Review?
525 Guidance for Authors when Choosing between a Systematic or Scoping Review
526 Approach. *BMC Medical Research Methodology*. 18(143).
527 <https://doi.org/10.1186/s12874-018-0611-x>

528 Ryan, Rebecca, Broclain, Dominique, Horey, Dell, Oliver, Sandy, and Pricor, Megan.
529 (2013). Study Quality Guide. *Cochrane Consumers and Communication*
530 *Review Group*.
531 https://ccrg.cochrane.org/sites/ccrg.cochrane.org/files/public/uploads/StudyQualityGuide_May%202013.pdf

532

533 The United States Census Bureau. (2018). Race, About this Topic. *U.S. Census*
534 *Bureau*. <https://www.census.gov/topics/population/race/about.html>

535 The United States Census Bureau. (2019). Foreign Born, About this Topic. U.S.
536 *Census Bureau*. [https://www.census.gov/topics/population/foreign-](https://www.census.gov/topics/population/foreign-born/about.html#par_textimage)
537 [born/about.html#par_textimage](https://www.census.gov/topics/population/foreign-born/about.html#par_textimage)

538 The United States Department of Agriculture (USDA). (2018). Food Security in the
539 U.S., Measurement. *Economic Research Service*.
540 [https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-](https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/measurement/)
541 [the-us/measurement/](https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/measurement/)

542 The United States Department of Agriculture (USDA). (2019). Food Security in the
543 U.S., Survey Tools. *Economic Research Service*.
544 [https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-](https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/survey-tools/)
545 [the-us/survey-tools/](https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/survey-tools/)

546 Vedovato, Gabriela M., Surkan, Pamela J., Jones-Smith, Jessica, Anderson-Steeves,
547 Elizabeth, Han, Eunkyung, Trude, Angela CB., Kharmats, Anna Y., and
548 Gittelsohn, Joel. (2015). Food Insecurity, Overweight and Obesity among Low-
549 Income African-American families in Baltimore City: Associations with Food-
550 Related Perceptions. *Public Health Nutrition*. 19(8).
551 DOI:10.1017/S1368980015002888
552
553
554
555
556
557
558
559
560
561

562 **Scoping Review authors**

563 **Lead author:** The lead author is the person who develops and co-ordinates the review
564 team, discusses and assigns roles for individual members of the map team, liaises with
565 the editorial base, and takes responsibility for the ongoing updates of the map.

566

Name: Elizabeth Dennard

Title: ORISE Fellow

Affiliation: Office of Applied
Research and Safety
Assessment (FDA)

Address: 8301 Muirkirk Road

City, State, Province or County:
Laurel, MD

Post code: 20708

Country: United States

Phone: 301-348-1908

Email:

elizabeth.dennard@fda.hhs.gov

567

568 **Co-author:** Methodology

Name: Dr. Elizabeth
Kristjansson

Title: Professor

Affiliation: University of
Ottawa, School of Psychology

Address: Room 5016 Vanier
Hall (School of Psychology)
136 Jean-Jacques Lussier

City, State, Province or County:
Ottawa, Ontario

Post code: K1N 6N5

Country: Canada

Phone: 613-882-7763

Email: kristjan@uottawa.ca

569

570 **Co-author:** Search Methodology

Name: Nedelina Tchangalova

Title: Public Health Librarian

Affiliation: University of
Maryland Libraries

Address: STEM Library
William E. Kirwan Hall

City, State, Province or County:
College Park, MD

Post code: 20742

Country: United States

Phone: 301-405-9151

Email: nedelina@umd.edu

571

572 **Co-author:** Information Retrieval

Name: Dr. Sarah Totton

Title: Research Assistant

Affiliation: Department of
Population Medicine

Address: Ontario Veterinary
College, University of Guelph

City, State, Province or County:
Guelph, ON

Post code: N1G 2W1

Country: Canada

Phone: 226-971-3820

Email: sarah.totton@gmail.com

573

574 **Co-author:** Content

Name: Dr. Donna Winham

Title: Assistant Professor

Affiliation: Food Science and
Human Nutrition
Iowa State University

Address: 2302 Osborn Drive

City, State, Province or County:
Ames, Iowa

Post code: 50011

Country: USA

Phone: 515-294-5040

Email: dwinham@iastate.edu

575

576 **Co-author:** Methodology

Name: Dr. Annette O'Connor

Title: Professor of
Epidemiology

Affiliation: Iowa State
University, College of
Veterinary Medicine

Address: 1809 Riverside Drive

City, State, Province or County:
Ames, Iowa

Post code: 50011

Country: United States

Phone: 515-294-5012

Email: occonnor@iastate.edu

577

578 **Roles and responsibilities**

579 Please note that this is the **recommended** optimal review team composition.

580 • **Methodology:** Dr. Annette O'Connor and Dr. Elizabeth Kristjansson

581 • **Content:** Dr. Donna Winham

582 • **Search Methodology:** Nedelina Tchangalova

583 • **Review Team Lead:** Elizabeth Dennard

584 • **Information retrieval:** Elizabeth Dennard and Dr. Sarah Totton

585 **Sources of Support**

586 Elizabeth Dennard receives financial support through her ORISE fellowship in the
587 Office of Applied Research and Safety Assessment with the FDA. The Oak Ridge
588 Institute for Science and Education is managed by ORAU, a university consortium of
589 PhD granting academic institutions and a 501(c)(3) non-profit corporation. The review
590 team will receive support from Dr. Annette O'Connor, Dr. Sarah Totton, Nedelina
591 Tchangalova, Dr. Donna Winham, and Dr. Elizabeth Kristjansson.

592 **Declarations of Interest**

593 We do not have any conflicts or declarations of interest that could impact the
594 execution of this scoping review.

595 **Plans for Updating the Review**

596 Elizabeth Dennard will be responsible for updating the review at least once every 5
597 years as required by the Campbell Collaboration.

598

599

600

601

602

603

604

605 **Appendices**

606 **Appendix A: Search Terms**

607 *Table 3: Search Terms*

Food insecurity related terms	Population	Limit to:
access to food dietary inadequacy food access food accessibility food afford* food assistance food availability food choice food consumption food deprivation food desert food hardship food insecurity food insufficien* food intake food poverty food scarcity food security food sufficien* food supply food utilization fruit and vegetable intake hunger malnutrition nutrition security nutritional status supermarket access undernourishment	African American* Black	adults adult aged elderly Age: 19-65 1995-2019 English Peer reviewed United States

608
 609 *Truncation was used at the end of the word in all databases except for Pubmed to
 610 retrieve all variations of terms. Double quotes were used to search for specific phrases.
 611 Terms were combined with Boolean logic commands (AND, OR) and proximity
 612 operators (N5) depending on the database feature availability.

613
 614
 615
 616
 617
 618

619 **Appendix B: Search Strategies**

620 Search performed across all databases: 11/18/2019

621 For the PRISMA Flow diagram: Records identified through database searching

622 (n=3,796)

623

624 *Table 4: Pubmed Search Strategy*

Search	Query	Items found
#6	#5 Filters: Publication date from 1995/01/01 to 2019/12/31; English; Adult: 19+ years; Young Adult: 19-24 years; Adult: 19-44 years; Middle Aged + Aged: 45+ years; Middle Aged: 45-64 years	738
#5	#3 NOT #4	1,600
#4	"Animals"[Mesh] NOT ("Animals"[Mesh] AND "Humans"[Mesh])	4,639,963
#3	#1 AND #2	1,829
#2	("African Americans"[Title/Abstract] OR "African American"[Title/Abstract] OR Black[Title/Abstract]) OR African Americans[MeSH Terms]	182,988
#1	"food supply"[MeSH Terms] OR "access to food"[Title/Abstract] OR "dietary inadequacy"[Title/Abstract] OR "food access"[Title/Abstract] OR "food accessibility"[Title/Abstract] OR "food afford*"[Title/Abstract] OR "food assistance"[Title/Abstract] OR "food availability"[Title/Abstract] OR "food choice"[Title/Abstract] OR "food consumption"[Title/Abstract] OR "food deprivation"[Title/Abstract] OR "food desert"[Title/Abstract] OR "food hardship"[Title/Abstract] OR "food insecurity"[Title/Abstract] OR "food insufficien*"[Title/Abstract] OR "food intake"[Title/Abstract] OR "food poverty"[Title/Abstract] OR "food scarcity"[Title/Abstract] OR "food security"[Title/Abstract] OR "food sufficien*"[Title/Abstract] OR "food supply"[Title/Abstract] OR "food utilization"[Title/Abstract] OR "fruit[Title/Abstract] AND vegetable intake"[Title/Abstract] OR "fruit intake"[Title/Abstract] OR "vegetable intake"[Title/Abstract] OR hunger[Title/Abstract] OR malnutrition[Title/Abstract] OR "nutrition security"[Title/Abstract] OR "nutritional status"[Title/Abstract] OR "supermarket access"[Title/Abstract] OR undernourishment[Title/Abstract]	151,265

625

626

627 *Table 5: EBSCO Databases*

Databases	Limiters	Results
CINAHL Plus	1995-2019, English	1,091
MEDLINE	1995-2019, English, Peer reviewed	744
PsycINFO	1995-2019, English, Academic journals	498
Health Source: Nursing/Academic Edition	1995-2019, English, Peer reviewed	327
TOTAL		2,660

628

629 **EBSCO Search strategy:**

630 ((dietary N5 inadequacy) OR (food N5 (access OR accessibility OR afford* OR
 631 assistance OR availability OR choice OR consumption OR deprivation OR desert OR
 632 hardship OR insecurity OR insufficien* OR intake OR poverty OR scarcity OR security
 633 OR sufficien* OR supply OR utilization)) OR ((fruit OR vegetable) N5 intake) OR
 634 hunger OR malnutrition OR "nutrition security" OR "nutritional status" OR
 635 (supermarket N5 access) OR undernourishment)

636 AND

637 ("African American*" OR Black*) AND (adults OR adult OR aged OR elderly)

638

639 *Table 6: Web of Science Search Strategy*

Search	Query	Items found
#1	((TI=(("access to food" OR "dietary inadequacy" OR "food access" OR "food accessibility" OR "food afford*" OR "food assistance" OR "food availability" OR "food choice" OR "food consumption" OR "food deprivation" OR "food desert" OR "food hardship" OR "food insecurity" OR "food insufficien*" OR "food intake" OR "food poverty" OR "food scarcity" OR "food security" OR "food sufficien*" OR "food supply" OR "food utilization" OR "fruit and vegetable intake" OR "fruit intake" OR "vegetable intake" OR hunger OR malnutrition OR "nutrition security" OR "nutritional status" OR "supermarket access" OR undernourishment)) AND TS=(("African American*" OR Black*))) NOT SU=("Veterinary Sciences" OR Agriculture OR Entomology OR Fisheries OR Forestry OR "Plant Sciences" OR Zoology))	398

640

641 **Limiters:**

642 LANGUAGE: (English)

643 DOCUMENT TYPES: (Article)

644 Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH,

645 ESCI, CCR-EXPANDED, IC Timespan=1995-2019