

WHAT IS THE RELATIONSHIP BETWEEN DIETARY PATTERNS CONSUMED AND ALL-CAUSE MORTALITY?: SYSTEMATIC REVIEW PROTOCOL

This document describes the protocol for a systematic review to answer the following question: What is the relationship between dietary patterns consumed and all-cause mortality? This systematic review is being conducted by the 2020 Dietary Guidelines Advisory Committee, Dietary Patterns Subcommittee, and staff from USDA's Nutrition Evidence Systematic Review (NESR).

NESR methodology for answering a systematic review question involves:

- searching for and selecting articles,
- extracting data and assessing the risk of bias of results from each included article,
- synthesizing the evidence,
- developing a conclusion statement,
- grading the evidence underlying the conclusion statement, and
- recommending future research.

More information about NESR's systematic review methodology is available on the NESR website: <https://nesr.usda.gov/2020-dietary-guidelines-advisory-committee-systematic-reviews>.

This document includes details about the methodology as it will be applied to the systematic review described herein.

- The [analytic framework](#) (p. 2) illustrates the overall scope of the question, including the population, the interventions and/or exposures, comparators, and outcomes of interest.
- The [literature search and screening plan](#) (p. 3) details the electronic databases and [inclusion and exclusion criteria](#) (p. 3) that will be used to search for, screen, and select articles to be included in the systematic review.
- The [literature search and screening results](#) (p. 7) includes a list of included articles, and a list of excluded articles with the rationale for exclusion.

This protocol is up-to-date as of: 07/02/2019.

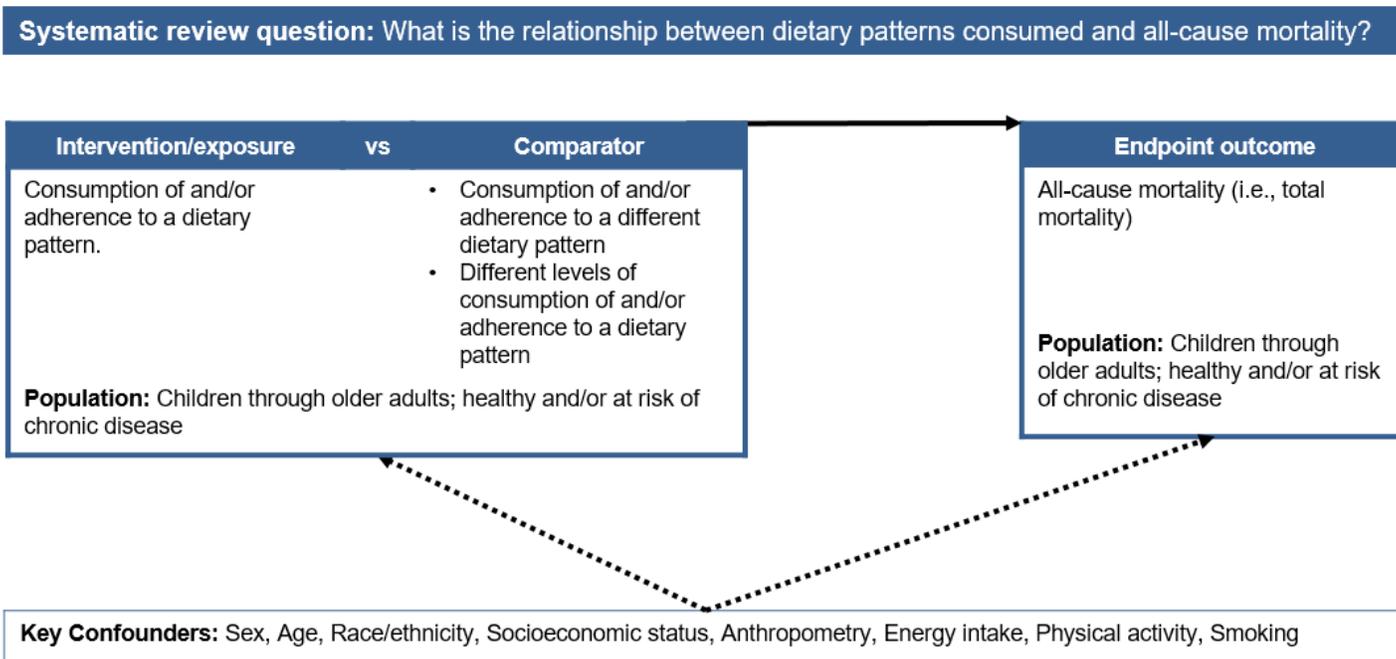
This version of the protocol contains updates to the following sections:

- The inclusion and exclusion criteria for the intervention/exposure were edited for clarity, but does not result in a substantive change in the intent or conduct of the review.

ANALYTIC FRAMEWORK

The analytic framework (**Figure 1**) illustrates the overall scope of the systematic review, including the population, the interventions and/or exposures, comparators, and outcomes of interest. It also includes definitions of key terms and identifies key confounders considered in the systematic review. The inclusion and exclusion criteria that follow provide additional information about how parts of the analytic framework will be defined and operationalized for the review.

Figure 1: Analytic framework



Key definitions

Dietary patterns – The quantities, proportions, variety, or combination of different foods, drinks, and nutrients (when available) in diets, and the frequency with which they are habitually consumed.

All-cause mortality – The total number of deaths from all causes during a specific time-period.

Legend

- > The relationship of interest in the systematic review
-> Factors that may impact the relationship of interest in the systematic review

LITERATURE SEARCH AND SCREENING PLAN

Electronic databases

Listed below are the databases that will be searched to identify all potentially relevant articles that have been published to address the systematic review question. Additional details regarding the search strategy will be published upon completion of the review, and are available upon request prior to publication.

- **Cochrane**
- **Embase**
- **PubMed**

Inclusion and exclusion criteria

This table provides the inclusion and exclusion criteria for the systematic review. The inclusion and exclusion criteria are a set of characteristics that will be used to determine which articles identified in the literature search will be included or excluded in the systematic review.

Table 1. Inclusion and exclusion criteria

Category	Inclusion Criteria	Exclusion Criteria
Study design	<ul style="list-style-type: none"> • Randomized controlled trials • Non-randomized controlled trials, including quasi-experimental and controlled before and after studies • Prospective cohort studies • Retrospective cohort studies • Nested case-control studies 	<ul style="list-style-type: none"> • Uncontrolled trials • Case-control studies • Cross-sectional studies • Uncontrolled before-and-after studies • Narrative reviews • Systematic reviews • Meta-analyses

Category	Inclusion Criteria	Exclusion Criteria
Intervention/ exposure	<ul style="list-style-type: none"> Studies that examine consumption of and/or adherence to a dietary pattern (such as Dietary Approaches to Stop Hypertension (DASH), vegetarian/vegan, low-carbohydrate, and high-fat diets) Dietary patterns may be measured or derived using a variety of approaches, such as adherence to a priori patterns (indices/scores), data driven patterns (factor or cluster analysis), reduced rank regression, or other methods, including clinical trials. Studies must describe the dietary pattern being tested or examined, including, at a minimum, the foods and beverages in the pattern 	<ul style="list-style-type: none"> Studies that do not provide a description of the dietary pattern, which at minimum, must include the foods and beverages in the pattern <ul style="list-style-type: none"> This includes studies that examine a labeled dietary pattern, but do not describe the foods and beverages consumed, as well as those patterns that are based solely on nutrients.
	<ul style="list-style-type: none"> Studies that examine consumption of and/or adherence to a specific macronutrient proportion diet (i.e., low-carbohydrate diet <45% of energy from carbohydrate or a high-fat diet of >35% of energy from fat) 	<ul style="list-style-type: none"> Studies that do not provide a description of or examine a specific % of energy from macronutrients (i.e., low-carbohydrate diet <45% of energy from carbohydrate or a high-fat diet >35% of energy from fat)
Comparator	<ul style="list-style-type: none"> Consumption of and/or adherence to a different dietary pattern Different levels of consumption of and/or adherence to a dietary pattern Studies that examine adherence to and/or or consumption of a different macronutrient proportion diet 	N/A
Outcomes	Studies that report all-cause mortality (i.e., total mortality): the total number of deaths from all causes during a specific time-period.	Studies that only report cause-specific mortality (total number of deaths from a specific disease, such as cardiovascular disease or cancer)
Date of publication	January 2000 – May 2019	Articles published prior to January 2000 or after May 2019

Question: What is the relationship between dietary patterns consumed and all-cause mortality?

Category	Inclusion Criteria	Exclusion Criteria
Publication status	Articles that have been peer-reviewed	Articles that have not been peer-reviewed and are not published in peer-reviewed journals, including unpublished data, manuscripts, reports, abstracts, and conference proceedings
Language of publication	Articles published in English	Articles published in languages other than English
Countryⁱ	Studies conducted in countries ranked as high or higher human development	Studies conducted in countries ranked as medium or lower human development
Study participants	<ul style="list-style-type: none"> • Human participants • Males • Females 	<ul style="list-style-type: none"> • Non-human participants (i.e., animals) • Women during pregnancy and lactation
Age of study participants	<ul style="list-style-type: none"> • Age at intervention or exposure: <ul style="list-style-type: none"> ○ Children and adolescents (ages 2-18 years) ○ Adults (ages 19-64 years) ○ Older adults (ages 65 years and older) • Age at outcome: <ul style="list-style-type: none"> ○ Children and adolescents (ages 2-18 years) ○ Adults (ages 19-64 years) ○ Older adults (ages 65 years and older) 	<ul style="list-style-type: none"> • Age at intervention or exposure: <ul style="list-style-type: none"> ○ Infants and toddlers (birth to 24 months) • Age at outcome: <ul style="list-style-type: none"> ○ Infants and toddlers (birth to 24 months)

ⁱThe Human Development classification was based on the Human Development Index (HDI) ranking from the year the study intervention occurred or data were collected (UN Development Program. HDI 1990-2017 HDRO calculations based on data from UNDESA (2017a), UNESCO Institute for Statistics (2018), United Nations Statistics Division (2018b), World Bank (2018b), Barro and Lee (2016) and IMF (2018). Available from: <http://hdr.undp.org/en/data>). If the study did not report the year in which the intervention occurred or data were collected, the HDI classification for the year of publication was applied. HDI values are available from 1980, and then from 1990 to present. If a study was conducted prior to 1990, the HDI classification from 1990 was applied. If a study was conducted in 2018 or 2019, the most current HDI classification was applied. When a country was not included in the HDI ranking, the current country classification from the World Bank was used instead (The World Bank. World Bank country and lending groups. Available from: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-country-and-lending-groups>).

Question: What is the relationship between dietary patterns consumed and all-cause mortality?

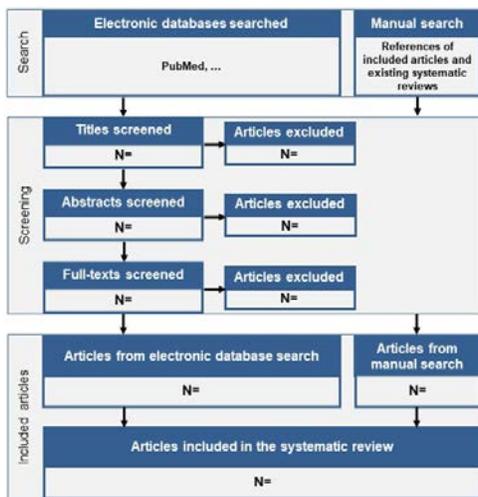
Category	Inclusion Criteria	Exclusion Criteria
Health status of study participants	<ul style="list-style-type: none">• Studies that enroll participants who are healthy and/or at risk for chronic disease, including those with obesity• Studies that enroll some participants diagnosed with a disease	<ul style="list-style-type: none">• Studies that exclusively enroll participants diagnosed with a disease. (For this criterion, studies that exclusively enroll subjects with obesity will be included.)

LITERATURE SEARCH AND SCREENING RESULTS

This protocol will be updated with the literature search and screening results after the search and screening plan has been finalized and implemented.

The flow charts (**Figure 2**) below illustrates the literature search and screening results for articles examining the update to this systematic review question. The results of the electronic database searches, after removal of duplicates, were screened independently by two NESR analysts using a step-wise process by reviewing titles, abstracts, and full-texts to determine which articles met the inclusion criteria. A manual search was done to find articles that were not identified when searching the electronic databases; all manually identified articles are also screened to determine whether they meet criteria for inclusion.

Figure 2: Flow chart of literature search and screening results from the existing review (To be added)



Included Articles from Existing Literature Search (To be added)

1. Ref

Excluded Articles (To be added)

The table below lists the articles excluded after full-text screening for the update to this systematic review question. At least one reason for exclusion is provided for each article, which may not reflect all possible reasons. Information about articles excluded after title and abstract screening is available upon request.

Table 2. Excluded articles

Citation	Rationale
1	