

CHAIR OF PUBLIC HEALTH AND HEALTH SERVICES RESEARCH INSTITUTE FOR MEDICAL INFORMATION PROCESSING, BIOMETRY AND EPIDEMIOLOGY – IBE PETTENKOFER SCHOOL OF PUBLIC HEALTH – PSPH



# FERN FoodSAMSA Webinar Series #2

# Scoping Review Methodology

Parts of this presentation are from Dr Jake Burns and Dr Kerstin Sell

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# **Conflicts of interest**

• Nothing to declare.





# Agenda

- 1. Rationale for doing a scoping review
- 2. Application of scoping reviews in FE and systems research
- 3. Guidelines and best practices
- 4. Scoping review steps
- 5. Case study





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World of evidence synthesis and ,secondary research'

**Review**: To view, inspect, or examine a second time or again

Evidence synthesis (i.e. secondary research) draws on already existing studies and data to answer research questions of interest – **the review is the main tool for doing so** 

We define **reviews** as study types that summarize and/or synthesize multiple studies which look at the same or a similar question

#### What type of review is right for you?

#### Literature (narrative) review

A broad term referring to reviews with a wide scope and non-standardized methodology

#### Systematic Review (SR)

A methodical and comprehensive literature synthesis focused on a wellformulated research question

#### **Rapid Review**

Applies SR methodology within a time-constrained setting

#### **Umbrella Review**

Reviews other SRs on a topic

#### **Meta-Analysis**

A statistical technique for combining the findings from disparate quantitative studies

#### **Scoping Review or Evidence Map**

Systematically and transparently collects and categorizes existing evidence on a broad topic or set of research questions





#### What type of review is right for you?



Previously known as "What Review is Right for You?"

This tool is designed to provide guidance and supporting material to reviewers on methods for the conduct and reporting of knowledge

synthesis.





#### Right Review: Quantitative Reviews

For guidance on using this tool, please refer to our Explanation and Elaboration document and/or the tool tips icon ?

- 1. What is your goal or objective?
- a. Assess the effectiveness and/or safety of interventions ?
- b. Assess the burden of illness, monetary costs or the cost-effectiveness of interventions 2
- c. Assess the epidemiology of a disease or health condition (2)
- O d. Assess the prognosis of a disease or health condition 3
- e. Assess a diagnostic test for precision and accuracy (2)
- f. Identify/clarify concepts, definitions, available research, and gaps in research ②
- 2. If your review is about interventions or diagnostic tests, how many?
- 🔾 a. 2 😮
- 🔿 b. >2 😮
- O c. Not applicable
- 3. What type of evidence will you be using?
- O a. Systematic reviews only 3
- O b. Primary studies only 3
- 🔘 c. Both

https://rightreview.knowledgetranslation.net/

Literature review vs. Systematic Review vs. Scoping review



#### Literature review



"The literature review method seeks to identify what has been accomplished previously, allowing for consolidation, for building on previous work, for summation, for avoiding duplication and for identifying omissions or gaps" (Dr Sally Pezaro)

Method: Exploration of the existing literature through some form of literature search; some form of comparison and/or summary of identified studies.

Specific methods largely undefined, subjective and bias unavoidable.

#### **Systematic Review**



Aims to identify and synthesize all of the scholarly research on a particular topic, including both published and unpublished studies. Much more time-intensive than traditional literature reviews.

Method: A methodical and comprehensive literature synthesis focused on a well-formulated research question. May involve a meta-analysis.

Conducted in an unbiased, reproducible way to provide evidence for practice and policy-making and to identify gaps in research.

#### What exactly is a ,scoping review'?

- Relatively new tool in the field of evidence synthesis approaches
- A form of systematic knowledge synthesis to idenitfy / clarify
  - Key concepts/definitions in literature
  - Types of available evidence in a given field
  - Research conduct on a certain topic or field
  - Knowledge gaps in research
  - Key characteristics or factors related to a concept
- By systematically and transparently searching, selecting, and synthesizing existing knowledge
- May critically evaluate existing evidence, but does not attempt to synthesize the results in the way a systematic review would
- May take longer than a systematic review



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**Food systems (FS)**: encompass the entire range of **actors** and their interlinked value-adding **activities** involved in the **production**, **aggregation**, **processing**, **distribution**, **consumption** and **disposal** of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded (FAO)



#### 5 subsystems of food systems:

- Biological system
- Health system
- Economic system
- Political system
- Social system
- $\rightarrow$  Attributes of complex systems
- Negative and positive feedback loops
  between subsystems
- Non-linear associations and tippingpoints
- Path dependencies



#### Within this complex system, scoping reviews can help to identify/clarify:

## Key concepts/definitions in literature

For example <u>Murray et al. 2023</u>: ,A scoping review of the conceptualisations of food justice'

#### Abstract

*Objective:* The emerging concept of 'food justice' describes a social movement and a set of principles. It align with the goals of social justice, demanding recognition of human rights, equal opportunity, fair treatment and is participatory and community specific. The aim of this study was to investigate the conceptualisation of food justice and to explore how community participation is positioned in food justice scholarship.

*Design:* A scoping review of peer-reviewed literature was conducted using the term 'food justice'. This study used a five-step scoping review protocol. The databases included Scopus, Web of Science and Medline (OVID). Data were extracted on country of origin, research discipline, study type and conceptualisations of food justice. Reflexive thematic analysis was used to identify the themes.

*Results:* The search identified 546 abstracts of which ninety peer-reviewed studies met the inclusion criteria. Thematic analysis identified five themes of food justice across these ninety studies: (1) social equity, (2) food security, (3) food systems transformation, (4) community participation and agency and (5) environmental sustainability.

*Conclusions:* Current conceptualisations of food justice are evolving. Together, these five themes, using the term food justice, embrace a more holistic and structural view of the food system. They emphasise healthy, sustainable and equitable food as a human right and acknowledge the need to address structural barriers to that right. Community participation and agency in food justice decision-making is critical for transformative change towards a healthy, sustainable, and more just food system.

Within this complex system, scoping reviews can help to identify/clarify:

- Types of evidence available in a given field
- Knowledge gaps in research

For example <u>Bunge et al. 2022</u>: ,A systematic scoping review of the sustainability of vertical farming, plant-based alternatives, food delivery services and blockchain in food systems' A. Charlotte Bunge <sup>1</sup><sup>1</sup><sup>3</sup>, Amanda Wood <sup>1</sup>, Afton Halloran<sup>2,3,4</sup> and Line J. Gordon <sup>1</sup>

Food system technologies (FSTs) are being developed to accelerate the transformation towards sustainable food systems. Here we conducted a systematic scoping review that accounts for multiple dimensions of sustainability to describe the extent, range and nature of peer-reviewed literature that assesses the sustainability performance of four FSTs: plant-based alternatives, vertical farming, food deliveries and blockchain technology. Included literature had a dominant focus on environmental sustainability and less on public health and socio-economic sustainability. Gaps in the literature include empirical assessments on the sustainability of blockchain technology, plant-based seafood alternatives, public health consequences of food deliveries and socio-economic consequences of vertical farming. The development of a holistic sustainability assessment framework that demonstrates the impact of deploying FSTs is needed to guide investments in and the development of sustainable food innovation.

#### Within this complex system, scoping reviews can help to identify/clarify:

#### Abstract

**Background:** There is convincing evidence that unhealthy food marketing is extensive on television and in digital media, uses powerful persuasive techniques, and impacts dietary choices and consumption, particularly in children. It is less clear whether this is also the case for outdoor food marketing. This review (i) identifies common criteria used to define outdoor food marketing, (ii) summarises research methodologies used, (iii) identifies available evidence on the exposure, power (i.e. persuasive creative strategies within marketing) and impact of outdoor food marketing on behaviour and health and (iv) identifies knowledge gaps and directions for future research.

**Methods:** A systematic search was conducted of Medline (Ovid), Scopus, Science Direct, Proquest, PsycINFO, CINAHL, PubMed, the Cochrane Database of Systematic Reviews, the Cochrane Central Register of Controlled Trials and a number of grey literature sources. Titles and abstracts were screened by one researcher. Relevant full texts were independently checked by two researchers against eligibility criteria.

**Results:** Fifty-three studies were conducted across twenty-one countries. The majority of studies (*n* = 39) were conducted in high-income countries. All measured the extent of exposure to outdoor food marketing, twelve also assessed power and three measured impact on behavioural or health outcomes. Criteria used to define outdoor food marketing and methodologies adopted were highly variable across studies. Almost a quarter of advertisements across all studies were for food (mean of 22.1%) and the majority of advertised foods were unhealthy (mean of 63%). The evidence on differences in exposure by SES is heterogenous, which makes it difficult to draw conclusions, however the research suggests that ethnic minority groups have a higher likelihood of exposure to food marketing outdoors. The most frequent persuasive creative strategies were premium offers and use of characters. There was limited evidence on the relationship between exposure to outdoor food marketing and eating behaviour or health outcomes.

**Conclusions:** This review highlights the extent of unhealthy outdoor food marketing globally and the powerful methods used within this marketing. There is a need for consistency in defining and measuring outdoor food marketing to enable comparison across time and place. Future research should attempt to measure direct impacts on behaviour and health.

Keywords: Outdoor, Advertising, Food, HFSS

## Research conduct on a certain topic or field

For example Finlay et al. 2022: ,A scoping review of outdoor food marketing: exposure, power and impacts on eating behaviour and health'

Within this complex system, scoping reviews can help to identify/clarify:

# Key characteristics or factors related to a concept

For example <u>Granheim et al. 2021</u>: ,*Mapping the digital food environment: A systematic scoping review*<sup>4</sup>

#### Summary

Food environments are directly linked to diets and health outcomes such as overweight, obesity, and noncommunicable diseases. The digitalization of food environments is becoming a central issue in public health, yet little is known about this emerging field. We performed a systematic scoping review to map the research on the digital food environment and investigate how the eight dimensions of the food environment, according to an established framework (availability, prices, vendor and product properties, marketing and regulation, accessibility, affordability, convenience, and desirability), might be shifting in the context of a digital society. We searched MEDLINE, EMBASE, Scopus, and Web of Science for studies published between 2000 and 2019, using search terms covering digital technology and food environment, which yielded 13,580 unique records. Our analysis of 357 studies shows that digitalization is taking place in all dimensions of the food environment, and enabling the emergence of new forms of buying and selling food, such as online grocery shopping and online food delivery, which may be changing availability of foods and affecting the physical distance to shops and time allocated for shopping. Systematic reviews identified indicated that digital food marketing and social media can influence food choices, preferences and consumption. Our findings suggest that digital and physical food environments are interconnected and influencing one another, but the impact of the digital on health and nutrition is yet unclear.



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## 3. Guidelines and best practices

Requirement of rigorous and transparent methods when conducting a scoping review



## 3. Guidelines and best practices

#### Chapter 11: Scoping reviews



Erstellt von Zachary Munn © Zuletzt aktualisiert von Emilie Francis 26 Juli, 2022 • 2 Min. Lesezeit



#### Micah DJ Peters, Christina Godfrey, Patricia McInerney, Zachary Munn, Andrea C. Tricco, Hanan Khalil

- > 11.1 Introduction to Scoping reviews
- > 11.2 Development of a scoping review protocol
- > 11.3 The scoping review and summary of the evidence
- 11.4 Chapter references
- Appendix 11.1 JBI template source of evidence details, characteristics and results extraction instrument
- Appendix 11.2 PRISMA ScR Extension Fillable Checklist



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### I. A priori scoping review protocol

#### II. Scoping review and summary of evidence

Step 1: Searching for relevant studies

Step 2: Study selection

Step 3: Charting the evidence

Step 4: Risk of Bias Appraisal (optional)

Step 5: Data synthesis

### **III. PRISMA ScR checklist**

#### A priori scoping review protocol

SF REGISTRIE	S <del>-</del>	Add New	My Registrations	Help	Donate	Join	Login			
Recommendations for and best practices by the formal food industry to address undernutrition and the double burden of malnutrition: a scoping review protocol										
Public registration 👻	Updates 🗸						¥ 🗆 <			
A Overview	Study Information		≡	Co	ontributors	Olufunke /	Alaba Peter			
Image: Metadata	Hypotheses				Delobelle, Nicole Holliday, Estelle					
Files	What documents are available that include recor the formal food industry to address undernutriti	nmendations for and best practices by on (including underweight, stunting, d insecurity, considered in isolation or le burden of malnutrition?		Elc	Victoria Lambert, Anna Leibinger, Elochukwu Christopher Okanmelu, Eva Annette Rehfuess, and Peter von Philipsborn					
Resources	wasting and micro-nutrient deficiencies) and foo as part of broader strategies to address the doul			Ph						

- Provides a ,roadmap' and limits reporting bias
- Usually broader research question(s) than in a SR
- PCC (population-concept-context), instead of PICO
- Registration with the Open Science Framework or Figshare

#### **Step 1: Searching for relevant studies**

- Comprehensive search
  - At least two bibliographic databases
  - Searches for grey literature (e.g., reports, dissertations, newsletters)
  - Forward and backward reference searches
- Search all languages (if possible and relevant for your context)
- Limitations should be detailed and justified
- $\rightarrow$  Aim: to have one search strategy adapted to all sources
- $\rightarrow$  Search strategy to be peer-reviewed by a librarian or expert (e.g., PRESS)



#### **Step 2: Study selection**

- Download search results (of all databases) and deduplication
- Pre-defined inclusion/exclusion criteria (PCC)
  - Population
  - Concept
  - Context



- Double screening of Titles & Abstracts (TA) and Full Texts (FT)
  - E.g., <u>Rayyan</u> for TA screening, Microsoft Excel for FT screening
  - Discussion of conflicts within the group or a third person



#### **Step 3: Charting the evidence**

- Equals ,Data Extraction' in Systematic Reviews
- Pre-defined, standardized charting form (pilot-tested with team)
  - Characteristics of the included records (e.g., author(s), title, date of publication)
  - Population (e.g., age, gender factors, cultural factors, ethnic factors)
  - Concept (e.g., approaches, definitions, implementation, outcomes)
  - Context (e.g., country context)
- Double screening (alternative: one extractor, one verifier)
- JBI provides a data charting template

Scoping Review Details	
Scoping Review title:	
Review objective/s:	
Review question/s:	
Inclusion/Exclusion Criteria	
Population	
Concept	
Context	
Types of evidence source	
Evidence source Details and Characteristics	
Citation details (e.g. author/s. date. title, journal, volume, jssue, pages)	

Step 4: Risk of Bias Appraisal (optional)

• Optional step - not recommended by the JBI

 $\rightarrow$  Purpose of a scoping review is not to perform a meta-analysis or to synthesize results

- $\rightarrow$  No testing of hypotheses, rather an overview of the evidence
- Validated, study-design-specific assessment tool needed
  - Currently under development (JBI)
- Use systematic review instead to look more closely into relevant areas (identified through scoping review)

#### **Step 5: Data synthesis**

- Descriptive content analysis and/or (simple) thematic analysis of the evidence
- Focus on charting the evidence and identifying knowledge gaps
- Do <u>not synthesize</u> the outcomes of included sources of evidence
- No meta-analysis

Unlike a Systematic Review, the goal of a Scoping Review is <u>not</u> to develop policy/practice recommendations!



**Step 5: Data synthesis: Evidence and Gap Maps** 



#### **Step 5: Data synthesis: Evidence and Gap Maps**



- Size of bubbles indicating the amount of evidence available •
- $\rightarrow$  The bigger the bubble, the more evidence is available
- $\rightarrow$  Colour coding based on the quality of the evidence
- Often interactive surface  $\rightarrow$  clicking on bubble provides more information about included studies

#### **PRISMA ScR checklist**

- Reason: to ensure methodological and reporting quality of scoping reviews
- 20 (+ 2 optional) reporting items (usually in appendix/supplementary material)
- 7 sections
  - Title
  - Abstract
  - Introduction
  - Methods
  - Results
  - Discussion
  - Funding
- PRISMA flowchart (Moher et al.)

#### Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-SCR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	
INTRODUCTION		•	
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	

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Recommendations for and best practices by the formal food industry to address undernutrition and the double burden of malnutrition: a scoping review protocol (Klinger et al. 2023)

#### **DBM – Definition:**

- **Coexistence** and **interaction** of undernutrition along with overweight and obesity, or diet-related noncommunicable diseases over the life course within
  - Individuals
  - Households
  - Communities/Populations



within individuals, households and populations





and diet-related noncommunicable diseases



1a. 1990s double burden countries according to weight/height data

1b. 2010s double burden countries according to weight/height data





Popkin BM, Corvalan C, Grummer-Strawn LM. Dynamics of the double burden of malnutrition and the changing nutrition reality. The Lancet. 2020;395(10217):65-74. DOI: <a href="https://doi.org/10.1016/S0140-6736(19)32497-3">https://doi.org/10.1016/S0140-6736(19)32497-3</a>

**INFORMAS** Business Impact Assessment on Obesity and population-level nutrition (BIA-Obesity)



*Figure 1*: Commercial determinants of population nutrition – current domains of the INFORMAS BIA-Obesity framework (own illustration, based on Sacks G, et al. 2019)

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#### **Inclusion / Exclusion criteria**



#### Scoping review process





# **Any Questions?**

### References

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- Campbell Collaboration. <u>Evidence and gap maps</u>



# Thank you!

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