

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	How is food variety conceptualized and measured as a diet quality indicator in developed settings?: protocol for a systematic scoping review
AUTHORS	Chan, Sara; Mozaffari, Hadis; Conklin, Annalijn

VERSION 1 – REVIEW

REVIEWER	Gomez, Georgina Escuela de Medicina, Universidad de Costa Rica, Departamento de Bioquímica
REVIEW RETURNED	01-Mar-2023

GENERAL COMMENTS	It seems to me that the analysis is opportune and necessary. The only thing that worries me is leaving developing countries out of the analysis. The measurement of dietary diversity is a low-cost methodology that allows low-income countries an approach to assessing diet quality and micronutrient adequacy, not just as an indicator of food insecurity. Including some developing countries could enrich the analysis and provide methodological resources to researchers in these regions.
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REVIEWER	Yuzbashian, Emad Shahid Beheshti University
REVIEW RETURNED	12-May-2023

GENERAL COMMENTS	<p>Abstract</p> <p>While the abstract mentions that eligible articles must include a measure of dietary diversity as an indicator of diet quality, it would be helpful to provide more specific criteria for inclusion and exclusion. This could include criteria related to study design, sample size, geographic location, and publication date, among others.</p> <p>Why is it important to map the methodological approaches specifically in developed countries? What are the potential implications of this research? Providing a stronger justification for the study's significance would enhance the abstract's impact.</p> <p>It would be useful to acknowledge any potential limitations of the scoping review. For example, limitations related to language restrictions, publication bias, or the exclusion of certain study designs. Addressing these limitations upfront would increase the transparency and credibility of the review.</p> <p>Adding a sentence or two to briefly outline the expected outcomes or key findings of the scoping review would give readers a clearer understanding of what to expect from the research. This could include anticipated trends in the methodological approaches used</p>
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	<p>to measure dietary diversity, areas of consensus or contention, or potential gaps in the current literature.</p> <p>Method</p> <p>In the methods section, the stated objectives of the scoping review may be considered vague and redundant. While the objectives aim to understand the conceptualization, operationalization, and measurement of dietary diversity (DD), as well as validation and measurement issues, they lack a clear direction or hypothesis. It would be beneficial for the authors to provide more specific objectives that guide the review and potentially formulate a hypothesis to further focus the research. This would provide a clearer framework for the study and enhance the overall structure and purpose of the review.</p> <p>Search strategy: The search terms and databases used for literature search are well-defined. However, it would be valuable to include a rationale for the selection of these specific terms and databases. Explaining the reasoning behind these choices would enhance the credibility of the search strategy.</p> <p>Data extraction process: The data extraction process is adequately described, but it would be helpful to provide more details on how discrepancies or conflicts between reviewers will be resolved. Elaborating on the procedure for resolving disagreements would strengthen the rigor of the review process.</p> <p>Data synthesis: The plan for data synthesis is well-articulated, mentioning the use of a narrative approach and tables. However, it would be beneficial to explain how the findings will be synthesized in a narrative form. Providing an overview of the narrative synthesis methodology would enhance the clarity of this section.</p> <p>Ethical considerations: While it is mentioned that an ethics review is not required as primary data collection is not involved, it would be appropriate to include a statement on ethical approval or exemption, stating that the review adheres to ethical guidelines and regulations.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Dr. Georgina Gomez, Escuela de Medicina, Universidad de Costa Rica

Comments to the Author:

It seems to me that the analysis is opportune and necessary. The only thing that worries me is leaving developing countries out of the analysis. The measurement of dietary diversity is a low-cost methodology that allows low-income countries an approach to assessing diet quality and micronutrient adequacy, not just as an indicator of food insecurity. Including some developing countries could enrich the analysis and provide methodological resources to researchers in these regions.

Thank you for your suggestion and we agree that the measurement of dietary diversity can be a low-cost approach for low-income countries to also assess diet quality. However, the large majority of the literature on dietary diversity in low-income settings aims to assess food insecurity and

caloric insufficiency, and often in relation to child stunting and wasting. Moreover, the topic of diet diversity scores in developing countries has already been covered in a previous 2003 scoping review (see reference #7); we are adding the perspective of developed countries.

Reviewer: 2

Dr. Emad Yuzbashian, Shahid Beheshti University

Comments to the Author:

Abstract

While the abstract mentions that eligible articles must include a measure of dietary diversity as an indicator of diet quality, it would be helpful to provide more specific criteria for inclusion and exclusion. This could include criteria related to study design, sample size, geographic location, and publication date, among others.

We agree that it is helpful to have strict and clear exclusion and inclusion criteria for systematic reviews that aim to answer a question about the effect size of an exposure on an outcome, or about clinical effectiveness. However, it is not necessary for a scoping review to have such specific criteria because the purpose of a scoping review is to be broad and exploratory. Our goal is to understand the extent, range, and nature of the existing literature on the particular topic of dietary diversity scores and so any study from a developed country that includes a quantitative measure of dietary diversity as an indicator of diet quality/healthy eating, either within certain food groups or across food groups, is relevant to this scoping review. We have added some new text in the Discussion about this.

Why is it important to map the methodological approaches specifically in developed countries? What are the potential implications of this research? Providing a stronger justification for the study's significance would enhance the abstract's impact.

Thank you for the opportunity to further clarify our focus which is on DD scores as a diet quality indicator and as such is predominantly identified in the literature from developed nations. We have edited the abstract to make it clearer that the goal is to better understand diet quality from the view of variety and this will help towards better measurement and knowledge in future. We have included a revised Discussion that explains why we focus on developed and not developing nations and that the potential implications of this research might be.

It would be useful to acknowledge any potential limitations of the scoping review. For example, limitations related to language restrictions, publication bias, or the exclusion of certain study designs. Addressing these limitations upfront would increase the transparency and credibility of the review.

We completely agree and we have revised the review to explicitly acknowledge and discuss the following potential limitations:

“Finally, it is important to acknowledge certain limitations in our scoping review. First, language restrictions were imposed to reflect literacy of the research team and thus some literature may be missed, although major languages are covered (i.e., English, French, Persian/Farsi, and Chinese). Second, the breadth of the topic may result in a large volume of literature that may require quantification that can lose nuance and detailed information. Moreover, the broad scope of the DD literature may result in a wide range of publications with varying levels of detail that could limit data quality and rigor of this review which does not include a quality appraisal of the literature. Third, this review will be limited to the publication bias that may exist for DD scores that are over-represented because they showed significant effects on health outcomes.”

Adding a sentence or two to briefly outline the expected outcomes or key findings of the scoping review would give readers a clearer understanding of what to expect from the research. This could include anticipated trends in the methodological approaches used to measure dietary diversity, areas of consensus or contention, or potential gaps in the current literature.

Thank you, we have revised the last sentences of the abstract.

Method

In the methods section, the stated objectives of the scoping review may be considered vague and redundant. While the objectives aim to understand the conceptualization, operationalization, and measurement of dietary diversity (DD), as well as validation and measurement issues, they lack a clear direction or hypothesis. It would be beneficial for the authors to provide more specific objectives that guide the review and potentially formulate a hypothesis to further focus the research. This would provide a clearer framework for the study and enhance the overall structure and purpose of the review.

We appreciate the general need for a hypothesis in most research studies, however this is a scoping review which aims to simply map the existing literature. This research is not testing a null hypothesis of a relationship between two variables. This scoping review seeks to identify key concepts, and provide an overview of the available evidence on the specific topic of diet diversity/food variety. Nevertheless, in line with PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews) guidelines, our scoping review does have broad research objectives that guide the review process. These research questions help to structure the review and provide a clear focus for data synthesizing. Scoping review research questions are suggested to be broad and exploratory because they aim to understand the extent, range, and nature of the existing literature on a particular topic. We believe we have provided this information.

Search strategy: The search terms and databases used for literature search are well-defined. However, it would be valuable to include a rationale for the selection of these specific terms and databases. Explaining the reasoning behind these choices would enhance the credibility of the search strategy.

Thank you for the recommendation. We have included new text in the 'information sources' of our methods: "*These databases were selected as reputable sources of medical and health science literature and ProQuest offers a comprehensive inventory of graduate research globally.*"

We also added new text in the search strategy section of the methods: "*Since DD is an emerging research topic, standardized terminology has not been well-established. To ensure a robust search strategy was adopted, we generated a list of common phrases used to reflect DD (e.g., diet variety) and combined the concept of variety with major food groups such as fruits, meat, and dairy. The search term 'Recommended Food Score' was also included in the strategy as it is a DD measure known to the research team that is missed when only searching for DD-related terminology.*"

Data extraction process: The data extraction process is adequately described, but it would be helpful to provide more details on how discrepancies or conflicts between reviewers will be resolved. Elaborating on the procedure for resolving disagreements would strengthen the rigor of the review process.

We appreciate your suggestion to provide more details on the procedure for resolving discrepancies or conflicts between reviewers. We agree that elaborating on this aspect will enhance the rigor and transparency of our review process. In response to your comment, we have revised the section regarding the resolution of discrepancies. The updated description now reads as follows: "*Any discrepancy in inclusion eligibility will be resolved through a clear process. Initially, the three reviewers will independently evaluate the studies and record their findings separately, including adding notes to the record. The group will hold regular meetings to resolve disagreements or discrepancies during the process. When conflicts remain unresolved, the senior author, an epidemiology expert with extensive experience, will serve as an arbitrator and will have final decision if consensus is not reached. All decisions made to resolve discrepancies will be thoroughly recorded, including the rationale behind each determination.*"

Data synthesis: The plan for data synthesis is well-articulated, mentioning the use of a narrative approach and tables. However, it would be beneficial to explain how the findings will be synthesized in a narrative form. Providing an overview of the narrative synthesis methodology would enhance the clarity of this section.

Thank you for the suggestion to offer more clarity on the data synthesis. As we have now progressed further with our scoping review, we have found a very large volume of results that will not be easily summarised in narrative form. Rather, there are sufficient numbers to use a quantitative approach to describe the literature. We have therefore amended this section to read as follows:

"[...] the included research will be synthesized through summary statistics and graphical display as we anticipate a large volume of relevant results. We will calculate the proportion of publications across time (year) and location (country); we will calculate the mean timeframe for each type of DD score. We will use a histogram to display the prevalence of different consumption cut-points used for each type of DD score. We will calculate and display the mean number of studies using each type of DD score, and we will classify and group scores based on their definition and scoring method. We will construct a heatmap to display what proportion of food item is used in each type of DD score. We will use a pie chart to show the proportion of DD scores that have been validated."

Ethical considerations: While it is mentioned that an ethics review is not required as primary data collection is not involved, it would be appropriate to include a statement on ethical approval or exemption, stating that the review adheres to ethical guidelines and regulations.

Thank you. We have added an 'Ethics and Dissemination' section to the abstract which states the ethics exemption as it is a review article with no research participants.