Dietary assessment methodology and reporting in Pacific Island research: a scoping review protocol

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ABSTRACT

Objective: This scoping review aims to identify and describe the methods used to collect and analyze dietary intake data in residents of Pacific Island countries.

Introduction: Dietary assessment explores associations between dietary factors and health outcomes. In regions, including the Pacific Islands, where diet-related, non-communicable diseases are increasing, this is a growing area of research. As this information is used to inform food and nutrition policies and practice, accurate collection, analysis, and interpretation of dietary assessment data relies on robust methods. A greater understanding of how nutrition studies are designed can strengthen the evidence on nutrition and health in Pacific Island settings and inform future research approaches.

Inclusion criteria: The scoping review will consider studies published in peer-reviewed journals, including quantitative and qualitative study designs and gray literature, including government reports, research and technical reports, theses and dissertations that measure and/or assess dietary intake in resident populations of the Pacific Island member countries of the Secretariat of the Pacific Community: American Samoa, Commonwealth of the Northern Mariana Islands, the Cook Islands, the Federated States of Micronesia, French Polynesia, Guam, the Independent State of Papua New Guinea, the Independent State of Samoa, the Kingdom of Tonga, New Caledonia, Niue, Pitcairn Islands, the Republic of Fiji, the Republic of Kiribati, the Republic of the Marshall Islands, the Republic of Nauru, the Republic of Palau, the Republic of Vanuatu, Solomon Islands, Tokelau, Tuvalu, and Wallis and Futuna.

Methods: There will be no time limit and searches will be conducted in PubMed, CINAHL, CABI, Scopus, Cochrane Library, and Web of Science. Results will be limited to English-language articles. Data will be extracted independently by two reviewers into a charting table. Results will be presented graphically and with tables accompanied by a narrative summary.

Keywords: dietary data; dietary patterns; food composition; non-communicable disease; Pacific Islanders


Introduction

Assessment of dietary intake is used to monitor the nutritional quality of food consumed by populations; to explore associations between nutrients, dietary patterns, and health outcomes1; and to inform food and nutrition policies and practice.2 Suboptimal diet is a leading contributor to the global burden of disease,3 yet one of the largest challenges in nutrition research is the assessment and reporting of dietary intake.2,4

Accurate analysis and interpretation of dietary assessment data relies on robust methods, with many dietary assessment methods available to facilitate the process,4 all of which have methodological considerations.5 Dietary assessment methods use specific tools or instruments to gather dietary data and may integrate technology to improve the process.5 Methods can be indirect (eg, food balance sheets or household consumption surveys), or direct (eg, food frequency questionnaires, 24-hour recalls, dietary histories, food records, or duplicate meal method).5

Pacific Island Countries and Territories (PICT) have some of the highest reported rates of diet-related, non-communicable diseases,7 including type
II diabetes and cardiovascular disease. This is due in part to high levels of overweight and obesity, micronutrient deficiencies, and undernutrition (the triple burden of malnutrition), which is seen in communities throughout this region. Key contributing aspects include political, environmental, and economic changes, which have influenced a nutrition transition from traditional dietary patterns to greater reliance upon packaged and imported foods. Although several PICT studies have examined the relationship between dietary intake and health outcomes, the validity of dietary assessment methods in nutrition transition research in islander communities has been questioned due to reported misalignment with ethnographic and sociocultural evidence in Nauru. Further, dietary assessment tools used in research often rely on self-reporting by participants, hence, measurement error must be considered and addressed when interpreting study findings.

Given this is a growing area of research, it is necessary to identify and describe the research that has been undertaken on dietary assessment in PICT. A greater understanding of how nutrition studies are designed can strengthen the evidence on nutrition and health in Pacific Island research and inform future research approaches. This work is important as it can potentially lead to studies that yield stronger and more robust data and will assist with a better understanding of the links between diet and disease in this population. It is likely that this review will identify new methods of dietary assessment being used (if any) and will identify any gaps in methods/tools required for dietary assessment in this setting. This review will also provide a useful synthesis of the methods used for data collection and analysis for those who currently work in this area.

A scoping review is an appropriate method to examine dietary assessment in PICT as it facilitates the synthesis of research evidence to date by mapping methods, tools, reporting, and limitations in PICT nutrition research. This protocol will inform the scoping review and follows the framework provided by the JBI.

A preliminary search was conducted to identify any previously published reviews on this topic. The search was conducted in December 2019 in the following databases: CABI databases, JBI Database of Systematic Reviews and Implementation Reports, Cochrane Library, PROSPERO, and Epistemonikos using the keywords: “diets” AND “assess” AND “Pacific.” Two systematic reviews were identified; however, they were narrow in focus with one reporting on fat, sugar, and salt intake and another on one food (fish access and intake), and therefore exclude studies that examine other components of diet. No other systematic or scoping reviews were found that were either published or registered on this topic. The objective of this scoping review is to identify and describe the methods used to collect and analyze dietary intake in residents of Pacific Island countries.

The scoping review aims to assess how dietary data are collected and reported in PICT research. This review will identify and describe dietary assessment methods, data collection, and analyses used in the evaluation of dietary intake of resident Pacific Island populations.

**Review questions**

i) What dietary assessment methods are used for collecting dietary intake data in Pacific Island resident populations?

ii) What type of dietary information (ie, macro-/micro-nutrient, food group intake) is collected in Pacific Island resident populations?

iii) Which food composition tables or nutrient databases are used in the analysis of dietary intake of Pacific Island resident populations?

iv) What methodological limitations are reported in dietary assessment studies (eg, validity, reliability, measurement errors, availability of nutrient composition data)?

**Inclusion criteria**

**Participants**

The scoping review will consider all studies that include residents of Pacific Island countries and territories (any age, any sex). Any studies that include people from other locations will be excluded unless Pacific Island datasets can be extracted.

**Concept**

The scoping review will include studies that undertake any type of dietary assessment. Dietary assessment can include collection, analysis, and interpretation. Methods may be direct (eg, 24-hour recall) or indirect (eg, food balance sheets). The dietary information collected may include macronutrient, micronutrient,
or food group intakes. Analysis of collected data may be undertaken using food composition tables such as the Pacific Island Foods composition tables or other nutrient databases.

Context
The scoping review will consider studies that focus on PICT identified as member countries of the Secretariat of the Pacific Community and include: American Samoa, Commonwealth of the Northern Mariana Islands, the Cook Islands, the Federated States of Micronesia, French Polynesia, Guam, the Independent State of Papua New Guinea, the Independent State of Samoa, the Kingdom of Tonga, New Caledonia, Niue, Pitcairn Islands, the Republic of Fiji, the Republic of Kiribati, the Republic of the Marshall Islands, the Republic of Nauru, the Republic of Palau, the Republic of Vanuatu, Solomon Islands, Tokelau, Tuvalu, and Wallis and Futuna. Migrant populations living in other countries will be excluded.

Types of sources
This scoping review will consider all available publications that investigate dietary assessment of Pacific Islanders living in PICT. The review will consider quantitative and qualitative studies published in peer-reviewed journals, including but not limited to both experimental and observational study designs, ethnographical, narrative and case study designs, and gray literature including government reports, research reports, theses and dissertations. Only English-language papers will be included in this review due to this being the only language the reviewers understand, as well as time and budget constraints. Systematic reviews will be excluded as they are a synthesis of primary research. Conference abstracts will also be excluded from the review. There will be no time limit on the publications included.

Methods
The proposed scoping review will be conducted in accordance with JBI methodology.19

Search strategy
The search strategy will aim to locate both published and unpublished primary studies, government reports, research reports, theses and dissertations. A three-step search strategy will aim to locate all eligible published and unpublished studies. First, to identify search terms, an initial limited search of PubMed and CABI was undertaken. Second, in consultation with a research librarian, the text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop the full search strategy (Appendix I). Thirdly, the reference lists of all literature that meets the scoping review inclusion criteria will be searched to identify any additional studies. The databases to be searched include PubMed (NLM), CINAHL (EBSCO), CABI (via CABI interface), Scopus (Elsevier), Cochrane Library (Wiley), and Web of Science (Clarivate).

The search for dissertations and theses will include ProQuest Dissertations and Theses, TROVE, and Networked Digital Library of Theses and Dissertations. Other gray literature will be located by searching Google Scholar and by contacting experts of organizations involved in health care and food provision in the Pacific Islands, for example, the Food and Agriculture Organization of the United Nations.

Study selection
Following the search, all identified records will be collated and uploaded into EndNote v.X9 (Clarivate Analytics, PA, USA) and duplicates removed. References from EndNote will be imported into Covidence (Veritas Health Innovation, Melbourne, Australia). Titles and abstracts will be screened by two independent reviewers for assessment against the inclusion criteria. Full-text articles will be retrieved if they appear to meet the inclusion criteria or if further examination is required to determine eligibility, and added into Covidence. The full text of selected citations will be assessed in detail against the inclusion criteria by two independent reviewers. Reasons for exclusion of full-text papers that do not meet the inclusion criteria will be recorded and reported in the scoping review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion or with a third reviewer. The results of the search will be reported in full in the final scoping review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) flow diagram.21

Data extraction
Data will be extracted from the included papers by two independent reviewers using a structured data...
Systematic Review Protocol

D.L. Craven et al.

Extraction form developed by the reviewers and based upon the research questions. Relevant content will be extracted from each study as per the draft table presented in Appendix II. Charting of results will be an iterative process and the extraction table may be updated and further refined during the review. Discussion of any changes will be included in the presentation of results. Any disagreements that arise between reviewers will be resolved through discussion or with a third reviewer. Where required, authors of primary studies will be contacted if there are missing data.

Key data extraction will include: study citation details, date of study, population, study purpose, study design, stated dietary assessment methodology, assessment tool(s), dietary components collected, details of tool, validity of tool, reported methodological limitations, nutrient database or food composition tables used to generate nutrition information and statistical analysis (Appendix II).

Data presentation

Extracted data will be presented in diagrammatic or tabular form in a manner that aligns with the objective of the scoping review. Results will be organized under main conceptual categories that relate to the research questions, including year or period of publication, countries of origin, population, key attributes of the dietary assessment methods (including tools and calculation of nutrient intakes), and any reported limitations. Where applicable, frequencies and summaries will be provided. A descriptive narrative that responds to the questions of the review will be included.

Acknowledgments

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References


## Appendix I: Search strategy

**PubMed (NLM)**

Search date August 31, 2020.

<table>
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## Appendix II: Draft data charting table

<table>
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<tr>
<td>Population:</td>
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<td>Dietary assessment method(s):</td>
</tr>
<tr>
<td>Dietary assessment tool(s):</td>
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<tr>
<td>Details of tool administration:</td>
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<tr>
<td>Tool validity (if reported, eg, modified version or developed specifically for the study):</td>
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<tr>
<td>Dietary components assessed (eg, micronutrients, dietary patterns, food group intakes):</td>
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<tr>
<td>Statistical analysis of reported data:</td>
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<tr>
<td>Nutritional information (food composition tables or databases used to generate nutrient estimates from dietary intake data):</td>
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<tr>
<td>Reported limitations:</td>
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<tr>
<td>Key findings:</td>
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