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Systematic Scoping Review: Methods of Content and Construct Validity, and Cognitive Testing Among Newly Developed Food Frequency Questionnaire

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We use this protocol and it's working

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Abstract

This scoping review will systematically map the methods used to assess and report validity in studies that developed FFQs de novo. By synthesizing how content validity, construct validity, and cognitive testing are operationalized in FFQ development, this review aims to clarify current practices, identify methodological inconsistencies, and highlight areas requiring improved reporting standards.

Guidelines

Inclusion and Exclusion Criteria for the Scoping Review Protocol

Inclusion Criteria

- **Population / Study Type:** Empirical studies that developed a new Food Frequency Questionnaire (FFQ) from scratch for assessing dietary intake in humans.
- **Instrument Development Stage:** The FFQ must have been conceptually developed (item generation, food list creation, portion size determination) rather than adapted from an existing FFQ.
- **Psychometric Evaluation:** Studies that assessed at least one form of validity (content or construct) and at least one form of reliability (e.g., test–retest, internal consistency).
- **Content Validity:** Studies reporting expert review, cognitive interviewing, pilot testing, or participant feedback for item comprehensibility.
- **Construct Validity:** Studies reporting statistical or theoretical evidence for construct validity (e.g., factor analysis, hypothesis testing, structural validity).
- **Population Type:** Any human population (adults, children, specific patient groups, or general populations).
- **Study Design:** Quantitative, mixed-methods, or methodological studies focusing on FFQ development and psychometric evaluation.
- **Publication Type:** Peer-reviewed journal articles, dissertations, or reports published in English.

Exclusion Criteria

- **Adapted / Translated Instruments:** Studies that adapted, translated, or culturally modified an existing FFQ without de novo item development.
- **Criterion-Only Validation:** Studies that assessed only criterion validity (e.g., correlation with 24-h recall or biomarkers) without content or construct validity assessment.
- **Reliability-Only Studies:** Studies that measured only reliability without validity assessment.
- **Reviews / Protocols / Commentaries:** Narrative reviews, systematic reviews, scoping reviews, or editorials without primary data.
- **Non-human or Laboratory Studies:** Studies involving animal populations or in vitro analysis.
- **Incomplete Psychometric Reporting:** Studies that developed FFQ but did not report any formal assessment of validity or reliability.

Troubleshooting

Introduction

- 1 Food Frequency Questionnaires (FFQs) are among the most widely used tools for assessing habitual dietary intake in epidemiological and public health research. Despite their extensive use, the methodological rigor applied during the *development* of FFQs- particularly in establishing content validity, construct validity, comprehensibility, and reliability- varies substantially across studies. Many existing reviews focus on criterion validity against reference measures, leaving a critical gap in understanding how newly developed FFQs are conceptualized, structured, and psychometrically evaluated at the instrument-development stage.

This scoping review will systematically map the methods used to assess and report validity in studies that developed FFQs de novo. By synthesizing how content validity, construct validity, and cognitive testing are operationalized in FFQ development, this review aims to clarify current practices, identify methodological inconsistencies, and highlight areas requiring improved reporting standards.

Methods

- 2 **Research Questions:**
Among newly developed Food Frequency Questionnaires (FFQs), how have the studies assessed and reported content validity, construct validity, and cognitive testing/comprehensibility during instrument development?

Specific Objectives

1. To identify studies that developed Food Frequency Questionnaires (FFQs) from scratch.
2. To examine how content validity has been assessed and reported in these FFQ development studies.
3. To describe methods used for evaluating construct validity of newly developed FFQs.
4. To map the approaches used for cognitive testing or comprehensibility assessment during FFQ development.

Search Strategy

- 3 The following electronic databases were systematically searched from inception to November 23, 2025:
 - Ovid MEDLINE
 - Ovid EMBASE
 - Ovid PsycINFO

- CINAHL (EBSCOhost)
- Web of Science Core Collection
- Health and Psychosocial Instruments (HaPI)

No date or geographic limits were applied. Animal-only studies were excluded where applicable.

3.1 OVID MEDLINE (Then adapted for EMBASE, PsychINFO, and HaPI)

((food frequency questionnaire* or FFQ or food-frequency questionnaire* or dietary questionnaire* or diet history questionnaire* or diet questionnaire* or diet intake questionnaire*) adj6 (valid* or validat* or psychometric* or "content valid*" or "face valid*" or "construct valid*" or discriminant valid* or convergent valid* or "factor analys*" or "exploratory factor analysis" or EFA or "confirmatory factor analysis" or CFA or PCA or "principal component*")).ti.

3.2 CINAHL (EBSCOhost)

TI (("food frequency questionnaire*" OR FFQ OR "food-frequency questionnaire*" OR "dietary questionnaire*" OR "diet history questionnaire*" OR "diet questionnaire*" OR "diet intake questionnaire*") N6 ("valid*" OR "validat*" OR "psychometric*" OR "content valid*" OR "face valid*" OR "construct valid*" OR "discriminant valid*" OR "convergent valid*" OR "factor analys*" OR "exploratory factor analysis" OR "confirmatory factor analysis" OR EFA OR CFA OR PCA OR "principal component*"))

3.3 Web of Science

TI = (("food frequency questionnaire*" OR FFQ OR "food-frequency questionnaire*" OR "dietary questionnaire*" OR "diet history questionnaire*" OR "diet questionnaire*" OR "diet intake questionnaire*") AND ("valid*" OR "validat*" OR "psychometric*" OR "content valid*" OR "face valid*" OR "construct valid*" OR "discriminant valid*" OR "convergent valid*" OR "factor analys*"))

3.4 AND ("valid*" OR "validat*" OR "psychometric*" OR "content valid*" OR "face valid*" OR "construct valid*" OR "discriminant valid*" OR "convergent valid*" OR "factor analys*" OR "exploratory factor analysis" OR "confirmatory factor analysis" OR EFA OR CFA OR PCA OR "principal component*")

Inclusion Criteria

4

	A	B
	Category	Criteria

A	B
Population / Study Type	Empirical studies that developed a new Food Frequency Questionnaire (FFQ) from scratch for assessing dietary intake in humans.
Instrument Development Stage	The FFQ must have been conceptually developed (item generation, food list creation, portion size determination) rather than adapted from an existing FFQ.
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Data Extraction Table

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A	B	C
Data Item	Description/What to Extract	COSMIN Domain
Study Identification	Author(s), year, country, population characteristics, study setting	General Study Info
FFQ Purpose	Intended use of FFQ (general diet, specific nutrient/food group), target	Instrument Description

A	B	C
& Population	group	
FFQ Development Process	Item generation, food list development, portion size determination, expert review	Development Process
Cognitive Testing or Comprehensibility	Methods used for pre-testing, pilot studies, cognitive interviews	Content Validity
Content Validity	Expert panel review, relevance, comprehensiveness, clarity, methods used and findings	Content Validity
Construct Validity	Statistical tests (e.g., factor analysis, hypothesis testing), structure validity, results	Construct Validity
Measurement Error (if reported)	Comparison with biomarker or reference, limits of agreement	Measurement Error
Feasibility/Acceptability	Time to complete, burden, participant feedback	Feasibility
Main Findings and Conclusions	Summary of psychometric results and authors' conclusions	Synthesis
Quality Appraisal (if applied)	Criteria or checklist used to assess study quality	Appraisal
Funding/Conflict of Interest	Funding sources and potential conflicts	General Info