Systematic Scoping Review: How are qualitative methods used in implementation science research?

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Background: Why conduct a review?

Qualitative methods are commonly used in IS research

A **synthesis** of the applications of qual methods is **lacking**

It is critical to understand **how** qualitative methods have been used and identify areas for improvement and innovation

Create an accessible database for broader investigations related to methods

Increase **collaborations** across the field

Review questions

- Which qualitative data collection methods are used in IS research?
- Which qualitative analytic methods are used in IS research?
- Which IS frameworks are applied in IS research using qualitative methods?
- When qualitative methods are used in IS research, which implementation issues are explored?

SYSTEMATIC REVIEW PROTOCOLS

How are qualitative methods used in implementation science research? A scoping review protocol

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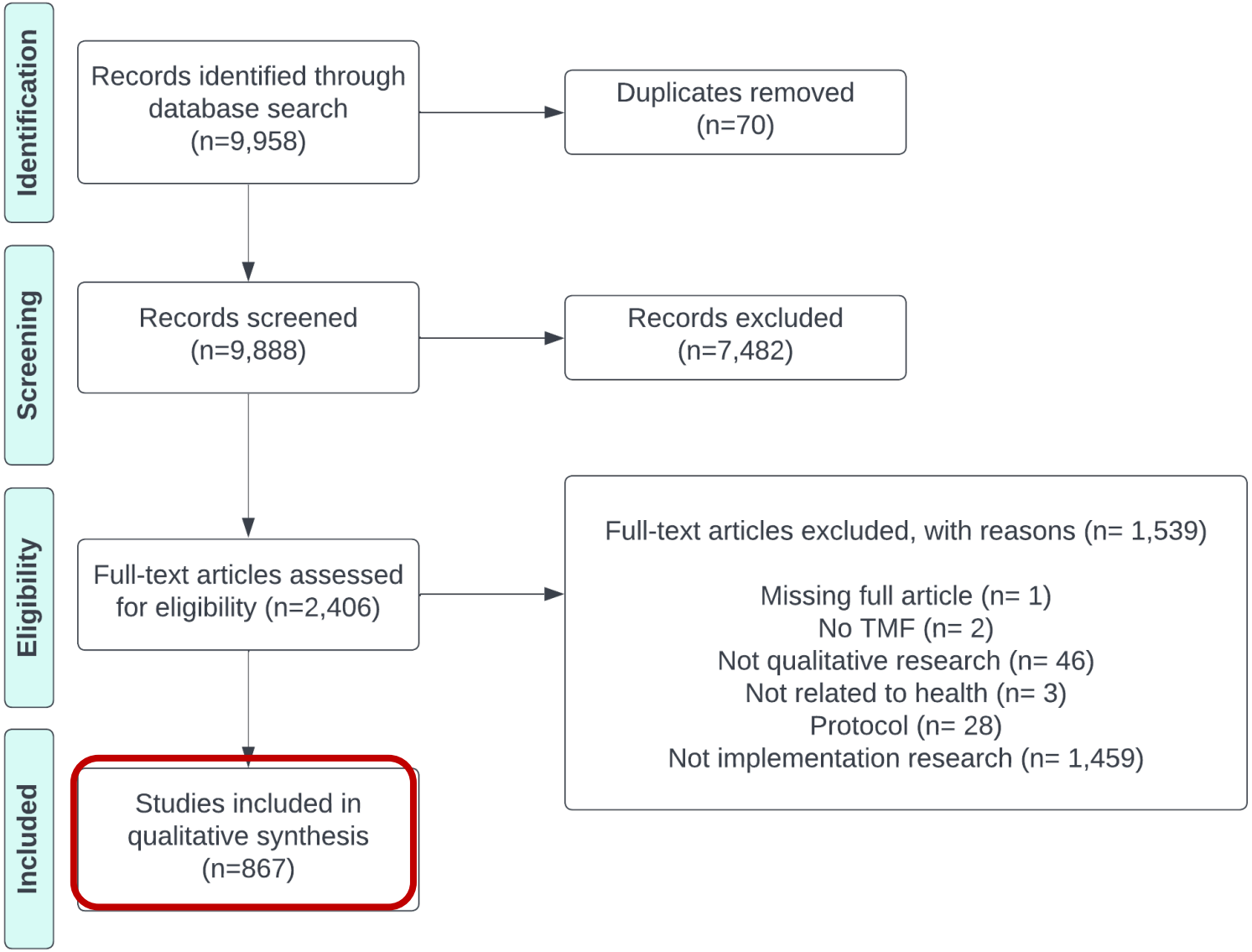
Data extraction domains and topics

Domain name	Topics
Article information	•First author institution affiliation country •Senior author institution affiliation country
Focus of article	•Geographic region •Health topic(s) •Evidence-based intervention utilized •Implementation strategy(ies) developed or evaluated
Study design	•Qualitative study design •Mixed-methods study design •Study sample
Data collection	•Data collection method(s) •Sample size •Sampling design •Timing of data elicitation •Data saturation •Interview guide •Field notes •Reflexivity •Duration of data collection
Analysis and findings	•Data coders •Coding consistency •Participant checking •Visuals •Software
Additional study design information	•Theory, Model, and Framework •Proctor's Taxonomy of Implementation Outcomes •Implementation phase •Qualitative analytical method(s) •Health equity

Results: Studies meeting inclusion criteria



Settings and health topics (867 articles)

WHO Region	N (%)
Region of the Americas	369 (42.6)
European Region	186 (21.5)
African Region	178 (20.5)
Western Pacific Region	82 (9.5)
South-East Asian Region	33 (3.8)
Eastern Mediterranean Region	10 (1.2)
Multiple Regions	9 (1.0)
World Bank Income Level	
High Income	603 (69.6)
Middle Income	174 (20.1)
Low Income	78 (9.0)
Multiple income levels	12 (1.4)
Health topic	
Systems	238 (27.5)
Mental health	157(18.1)
Chronic disease	141 (16.3)
HIV	138 (15.9)
Pediatrics	119 (13.7)
Infectious diseases	115 (13.3)
Technology/mHealth	107 (12.3)
Maternal health	73 (8.4)
Cardiovascular disease	59 (6.8)
Nutrition/Physical activity	57 (6.6)
Other[b]	54 (6.2)
Cancer	48 (5.5)
Injury	12 (1.4)

Other health topics include: environmental health, geriatrics/aging, sexual and reproductive health, critical care, physical therapy, domestic/sexual violence, housing insecurity, surgery, occupational health, and oral health

Data collection methods: design and sample

Total articles	867
Qualitative design	N (%)
Single elicitation	587 (67.7)
Longitudinal	176 (20.3)
Longitudinal (panel)	108 (12.5)
Longitudinal (not panel)	68 (7.8)
Case study	103 (11.9)
Mixed methods	
Used mixed methods	360 (41.5)
Sample population	
Health provider	651 (75.1)
Organization stakeholder	466 (53.7)
Individual consumer	313 (36.1)
Community stakeholder	87 (10.0)
Policy stakeholder	84 (9.7)
Other sample	69 (8.0)
Family/social contacts	67 (7.7)
More than one sample population	575 (66.3)

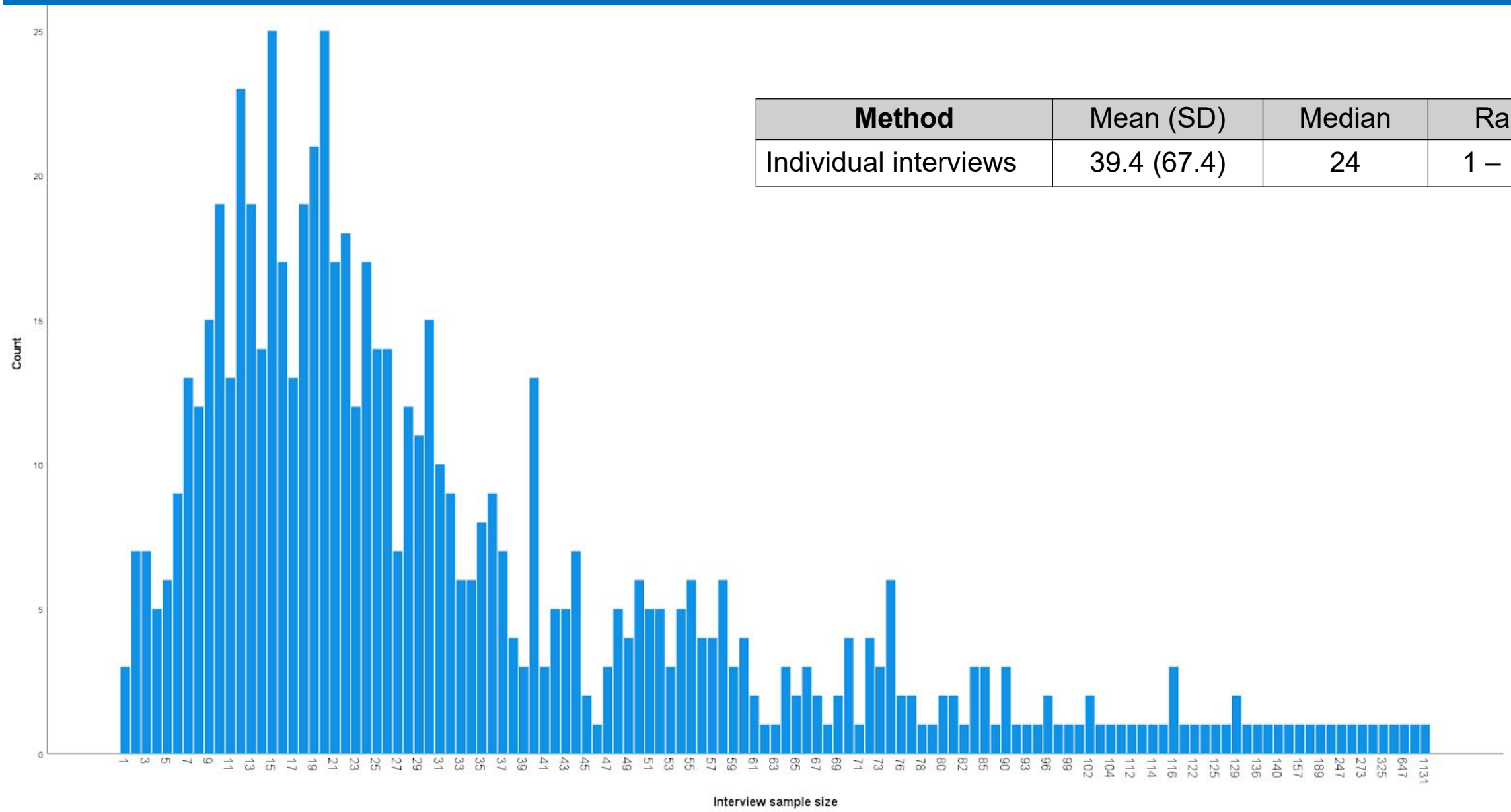
Data collection methods

Data collection method	N (%)
Individual interviews	731 (84.3)
Focus group discussions	299 (34.5)
Individual interviews and focus group discussions	214 (24.7)
Text extraction	159 (18.3)
Observations	148 (17.1)
Structured (no checklist)	43 (29.1)
Not reported	40 (27.0)
Unstructured	39 (26.4)
Other	14 (9.5)
Structured checklist	12 (8.1)
Individual interviews, focus group discussions, and observation	49 (5.7)
Other data collection method*	31 (3.6)
Included interview guide	302 (34.8)
Field notes	288 (33.2)
Reflexivity	75 (8.7)

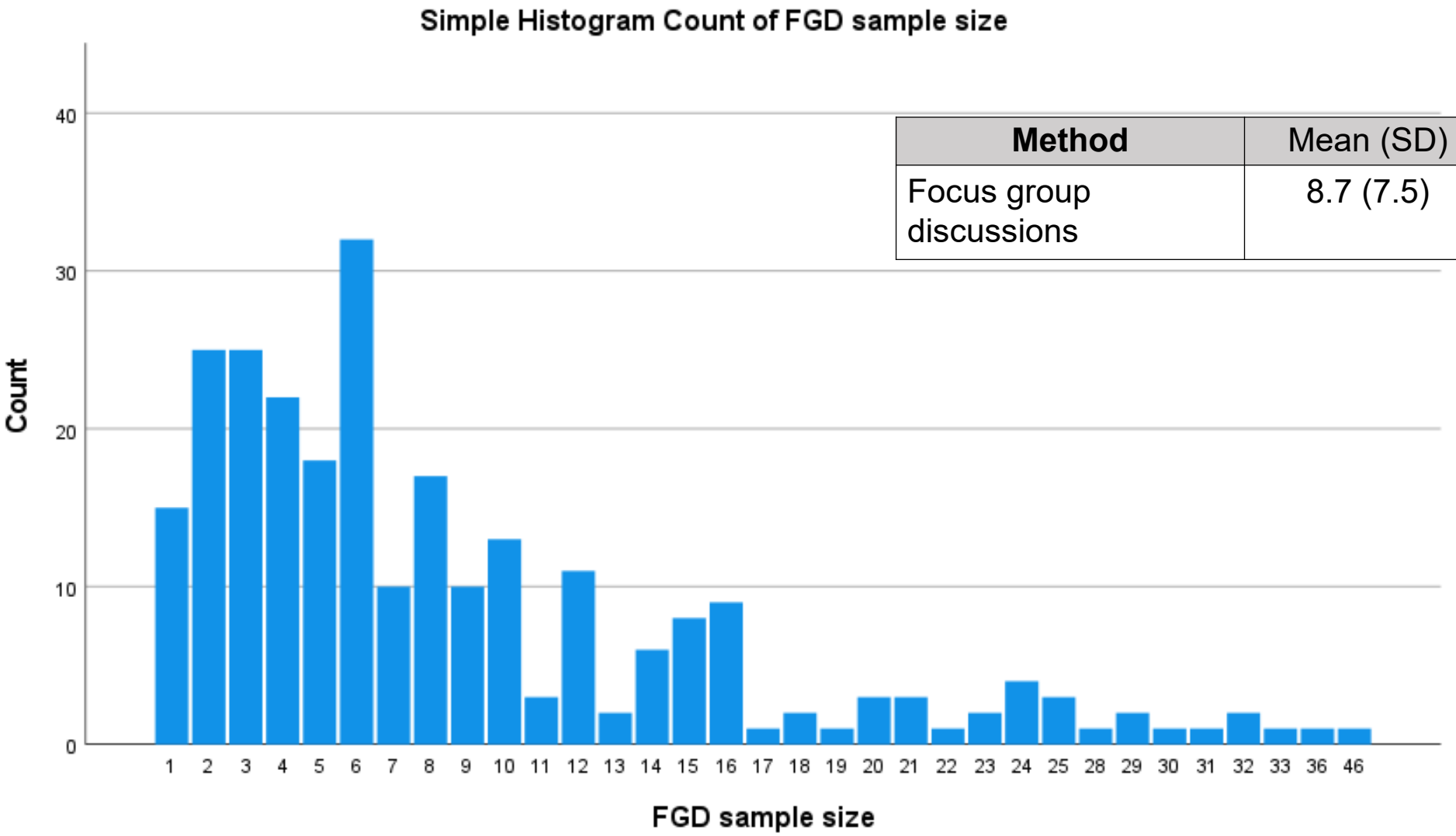
Other data collection methods included:
workshops/training sessions, working group meetings, reflection forms/periodic reflections, task groups, stakeholder meetings, questionnaires, informal phone calls, steering committee meetings, implementation team meetings

Sample sizes: Individual Interviews

Method	Mean (SD)	Median	Range
Individual interviews	39.4 (67.4)	24	1 – 1131

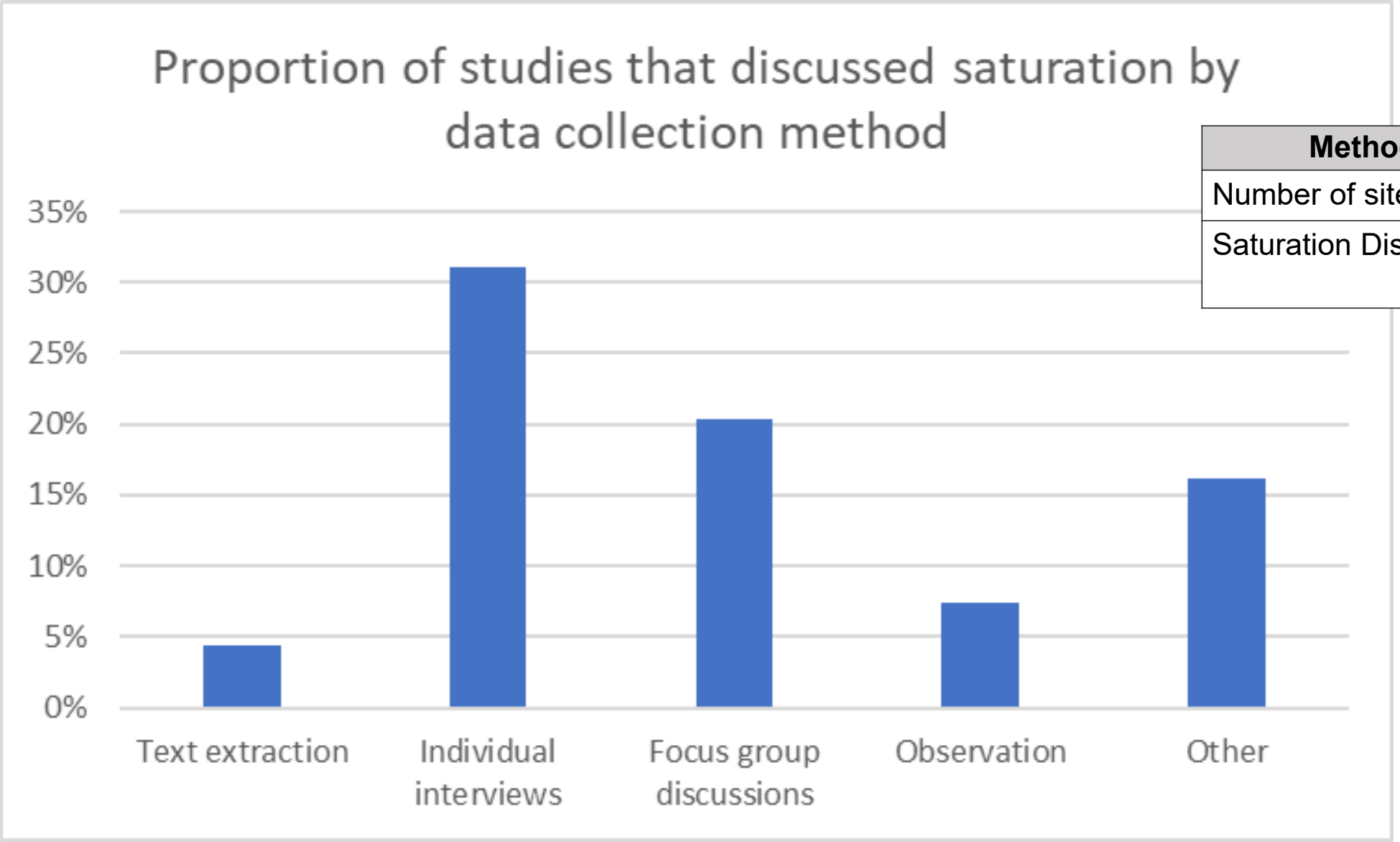


Sample sizes: Focus group discussions



Method	Mean (SD)	Median	Range
Focus group discussions	8.7 (7.5)	6	1 – 46

Sample sizes and saturation



Method	Mean (SD)
Number of sites	9.4 (37.4)
Saturation Discussed	89 (10.3)

Analytic Methods

Analytic method	N (%)
Thematic analysis	393 (45.3)
Content analysis	160 (18.5)
Not reported	110 (12.7)
Framework analysis	78 (9.0)
Grounded theory	76 (8.8)
Other approach[b]	54 (6.2)
Constant comparison	52 (6.0)
Thematic content analysis	21 (2.4)
Template analysis	17 (2.0)
Rapid analysis	8 (0.9)
CFIR approach	8 (0.9)
Narrative analysis	4 (0.5)
Interpretive descriptive approach	4 (0.5)
Not reported	46 (2.1)

Number of analytic approaches used	
One	562 (64.8)
Two	241 (27.8)
Three or more	18 (5.3)

Other analytic approaches included: within-case analysis, thematic framework analysis, immersion-crystallization approach, text condensation, synthetic analysis, realist evaluation, phenomenographic analysis, negative case analysis, matrix analysis, magnitude coding, lexical analysis, layered analysis, hermeneutic approach, ethnographic approach, configural frequency analysis, constructivist approach, concept mapping, Comskil coding system, computer-assisted linguistic analysis, and comparative case analysis

Analytic Methods: coding and reporting

Coding and reporting	N (%)
Used coders	788 (90.9)
1 coder	66 (8.4)
2 coders	301 (38.2)
3 +	194 (24.6)
Checked for consistency among coders	479 (60.8)
Not reported	227 (28.8)
Included quotes in results	778 (89.7)
Reported participant checking	89 (10.3)
Results visualization	316 (55.9)

Software	N (%)
Not reported	346 (39.9)
Nvivo	289 (33.3)
Atlas	104 (12.0)
Other	37 (4.3)
Excel	31 (3.6)
Dedoose	28 (3.2)
MaxQDA	22 (2.5)
Open code software	4 (0.5)

Theories, models, and frameworks

TMF use	
Guided data collection only	47 (5.4)
Guided data analysis only	261 (30.1)
Conceptualized the study	201 (23.2)
Guided both data collection and analysis	355 (40.9)
TMF	
Proctor's Implementation Outcomes* only	307 (35.4)
Theoretical Domains Framework	42 (4.8)
Normalization Process Theory	40 (4.6)
CFIR	93 (10.7)
RE-AIM framework	31 (3.6)
PARIHS	25 (2.9)
Diffusion of Innovations	33 (3.8)
Authors created their own theory, model, or framework	60 (6.9)
Other	567 (65.4)

Other TMFs included: Behavior Change Wheel; COM-B Model for Behavior Change; Organizational Readiness Theory; Organization theory of implementation innovations; QUERI; Social Capital Theories; Social Cognitive Theory; Social Learning Theory; Theory of Planned Behavior; Actor Network Theory; Unified Theory of Acceptance and Use of Technology; Theory of Change; Health Belief Model; Implementation Model by Grol et al. (2004); Ottawa Model; Technology Acceptance/Adoption Model; Ecological Validity Model; Logic Model; Kirkpatrick Model for Evaluation Training Courses; Transtheoretical Model for Behavior Change; Behavior Change Techniques Taxonomy; Conceptual Framework for Implementation Fidelity; EPIS Model; Interactive Systems Framework; Knowledge to Action; PRECEDE-PROCEED; Risk Explanatory Framework; Social Ecological Framework; Cultural-Historical Activity Theory; Assessment-Decision-Administration-Production-Topical experts-Integration-Training-Testing (ADAPT-ITT) Model; Information, Motivation, and Behavioral Skills Model; Analyze, Design, Develop, Implement, and Evaluate (ADDIE) Model; PRISM; SEA-Change Model; CDC Frameworks; Center for Public Health Systems Sciences Program Sustainability Framework; Dynamic Sustainability Framework; Levesque et al Conceptual Framework on Access to Healthcare, Medical Research Council Process Evaluation Framework, Health Policy Triangle; CFIR = Consolidated Framework for Implementation Research; RE-AIM framework = Reach, Effectiveness, Adoption, Implementation, and Maintenance framework; PARIHS = Promoting Action on Research Implementation in Health Services

Implementation strategies, phases, and outcomes

Implementation strategies	
Train and educate stakeholders	313 (36.1)
Use evaluative and iterative strategies	183 (21.1)
Engage consumers	130 (15.0)
Develop stakeholder interrelationships	123 (14.2)
Change infrastructure	107 (12.3)
Adapt and tailor to the context	72 (8.3)
Support clinicians	59 (6.8)
Utilize financial strategies	57 (6.6)
Provide interactive assistance	34 (3.9)
None	272 (31.4)

Implementation phase	
During implementation	751 (86.6)
Post implementation	83 (9.5)
During implementation and post implementation	32 (3.7)
De-implementation	10 (1.2)
Implementation outcomes	
Acceptability	588 (67.8)
Adoption	439 (50.6)
Appropriateness	379 (43.7)
Feasibility	317 (36.6)
Sustainability	191 (22.0)
Fidelity	177 (20.4)
Costs	116 (13.4)
Penetration	66 (7.6)

Takeaways for consideration and discussion

- Inconsistency of named analytic method(s)
- Reliance on dominant ‘ways of knowing’ (e.g., oral interview-based elicitation)
- What are the unique important considerations for multi-sited implementation research
- Qualitative data trustworthiness in implementation science research
- Rapid clinical ethnography in complex hierarchical work environments
- Handling multiple languages/ways of knowing and sense making
- Less than half studies used a TMF to guide both data collection and analysis: guidelines and methods advisements may increase use

Next analysis:
How are qualitative methods used to explore health equity in implementation science?

Health equity flagged terms

- Equity
- Disparity
- Justice
- Equality
- Vulnerable
- Marginalized
- Minority

268 (30.9%) had one or more of these terms.

Additional manuscripts

1. How is equity integrated and applied within qualitative D&I work?
2. How are sample sizes estimated and saturation approached? (focus on multi-sited research)
3. How are observation methods operationalized and used in implementation science?
4. What stages of implementation is qualitative research used? How? What are the benefits?
5. How are interview guides designed? (e.g., question types, alignment, structure)
6. How are qualitative methods integrated with the use of frameworks (e.g., for data collection, for data analysis)
7. Who and where is qualitative implementation research published by/in? (Manuscript analytics (e.g., gender of first authors, impact factor, authorship team, order of authors)
8. Topic-based papers exploring how qualitative methods are used in specific health domains for implementation science (e.g., mental health, nutrition)

Accessing the Qualitative Methods in Implementation Science Database (QMIS-D)

The QMIS-D allows for in-depth understanding of how qualitative methods are operationalized and integrated into implementation science research. We welcome others to use the extracted data to advance the use of qualitative methods across fields.

Data dictionary is here: https://tinyurl.com/5xkkc9uv

Fill out a request form: https://forms.gle/u22topcJfdmSw1CK8

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Thank you!

Qualitative Methods Innovation Program