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Qualitative Research in Nephrology: An Introduction to Methods and Critical Appraisal

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Introduction

Identifying and implementing patient priorities, values, and goals in research, practice, and policy is widely advocated to improve patient-centered care and outcomes (1). Qualitative research is a broad term for various approaches of inquiry that generate insights about people's perspectives, beliefs, and attitudes, which can drive or explain behaviors, decision making, and outcomes (2). Such insights can inform strategies and interventions to address barriers and challenges in clinician-patient communication, shared decision making, education, delivery of care, and resource allocation.

Qualitative methods may yield the answers to important questions in nephrology and transplantation. For example, exploring patient attitudes and preferences toward vascular access in hemodialysis can help address barriers to achieve the timely creation of permanent vascular access, which is associated with reduced mortality, infection, and health care costs. Furthermore, to address the gap between the need for and supply of transplantable organs, qualitative methods are used to describe community attitudes and beliefs toward deceased organ donation. This can assist in the development of education strategies, and policy change to increase deceased organ donation rates.

In recent years, there has been a substantial increase in the number of qualitative research articles published in medical journals, including in nephrology. Qualitative research conducted in a rigorous, systematic, and transparent manner yields comprehensive and compelling insights to inform practice and policy. This article provides an overview of qualitative research methods and a framework to appraise qualitative studies.

Overview of Qualitative Methods and Methodologies

Overview

Qualitative research encompasses a variety of different methodologies and methods, outlined in Figure 1. Methodology refers to the theory or framework (*e.g.*, grounded theory, phenomenology, or ethnography) that researchers may use, which can inform the choice of methods (*e.g.*, participant selection, data collection, and data analysis) (3). Usually, qualitative studies will involve an inductive approach, allowing the theories or concepts emerging from the data to generate hypotheses. This differs from the deductive methods used more often in quantitative research, which centers around testing a predetermined hypothesis. Qualitative research adopts an iterative approach, whereby researchers continually consult collected data throughout all stages of the study to inform their next steps. This may occur at the level of study design, such as revising the research questions, or at the level of data collection, where adjustments are made to the interview questions to clarify meaning and formulate concepts as new insights emerge. Qualitative research methods can also be combined with quantitative methods in a mixed-methods study. This complementary approach utilizes qualitative methods to explore quantitative findings to generate more complete data.

Participant Selection

Sampling in qualitative research seeks to obtain rich and diverse perspectives and meaning relevant to the research question. A purposive sampling strategy involves selecting research participants with particular characteristics of relevance, such as ethnicity or disease group. Such sampling aims to include a range of demographic, clinical characteristics, experiences, and backgrounds. This approach focuses on involving "information-rich" participants to obtain broad insights relevant to the research question (2).

Convenience sampling involves a more opportunistic approach, whereby the participants selected are easily accessible. The snowball approach involves identifying subsequent respondents by asking participants to identify individuals who can give important and relevant insights on the research topic. Theoretical sampling is used in grounded theory, where participants are selected specifically to test a theory as it emerges during the data analysis.

Data Collection

Qualitative studies may use one or more of the following methods of data collection: unstructured or semistructured interviews, focus groups, observations, and document analysis. Semistructured interviews are the most frequently used approach in health research and generally include 20–50 participants.

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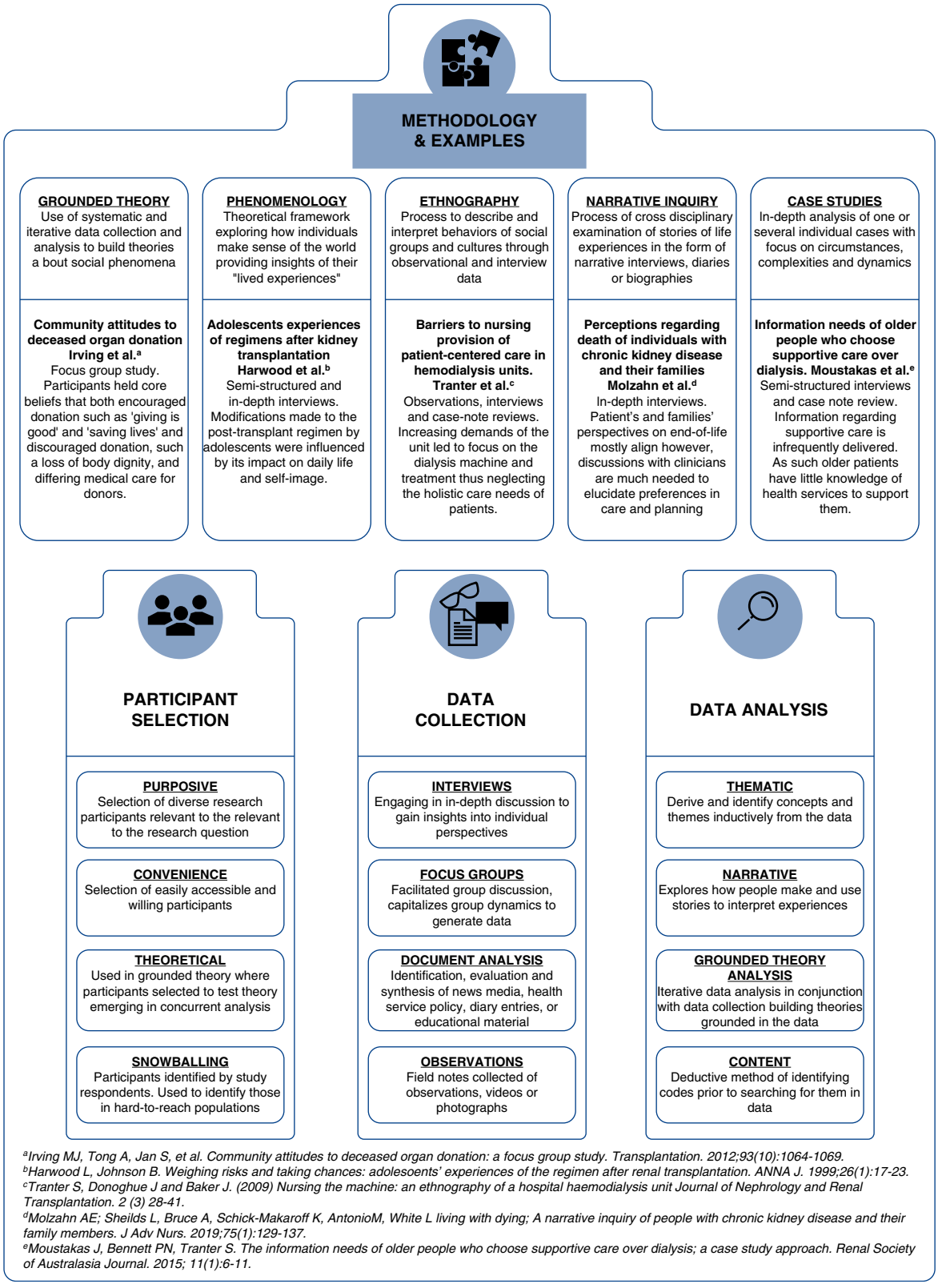

Figure 1. | **Common methodologies and methods in qualitative research.**

Question guides are developed after literature and expert review, and cover topics relevant to the aims and scope of the study. Open-ended questions prompt and encourage participants to elaborate on their responses. Such question guides may be pilot tested to ensure comprehension and clarity among a sample of study participants, and further

refined during data collection to address newly emergent topics, and capture the depth and breadth of data. Unstructured interviews are in-depth and take a more narrative approach, inviting participants to share their experiences with occasional prompts. Focus groups capitalize on group dynamics and encourage active participation and interaction among participants. Facilitated discussions encourage participants to share their views through shared experiences and explore similarities and differences of opinion (4). Focus group studies typically report three or more groups, each with 6–8 participants to optimize participant interaction.

Observation studies the events and actions within a particular social or historic context. It can be used with other methods, such as interviews, to obtain broader, more comprehensive perspectives. Document analysis involves identification, organization, evaluation, and synthesis of documentary data studies (*e.g.*, newspapers, social media content, speech transcripts, and published policies).

Data Analysis

Qualitative data analysis involves identifying patterns in the data to develop a descriptive and analytic framework. Data analysis is a systematic, interpretive, and iterative process that involves reading the data, identifying/coding phrases, items, and events, and comparing codes throughout the dataset. On completion of initial coding, the investigators group concepts into themes, and identify patterns and relationships among them. This iterative process aims to capture all concepts related to the phenomenon being investigated. It is important to acknowledge that the researchers' backgrounds, experiences, and values shape the process of data analysis and interpretation. Thus, the following strategies are implemented, aiming to enhance the authenticity of the findings: member checking (seeking feedback from participants on the preliminary findings), investigator triangulation (involving multiple researchers who independently review the data to contribute to analysis), and reflexivity (acknowledging and examining researchers' own biases that may affect the research process) (2,5).

Reporting of Qualitative Research

Several guidelines are available for reporting and appraising qualitative research. We recommend the use of the Consolidated Criteria for Reporting Qualitative Research (5) as a reporting guideline for interview and focus groups studies. The Consolidated Criteria for Reporting Qualitative Research checklist was developed to promote complete and transparent reporting on aspects of qualitative studies (including details of the research team, study context, methods, findings, data analysis, and interpretation).

Appraisal of Qualitative Research

Qualitative research should generate comprehensive and trustworthy insights, whereby the research process is documented in a way that allows for auditing. As such, steps in the research process can be retraced to lead to certain interpretation or theory to ascertain that no alternatives were left unexamined.

The following constructs proposed by Lincoln and Guba (6) can guide the appraisal of qualitative research: credibility (can the findings be trusted?); dependability (is the process logical and auditable?); transferability (are the findings relevant to other contexts and settings?); and confirmability (are the findings and interpretations linked to the data?). Table 1 provides a guide for assessing qualitative research according to these four constructs.

Credibility

Credibility refers to the extent the research offers comprehensive, trustworthy, and sensible explanations on the basis of the data. Strategies to optimize credibility include providing a description of the research team, their roles, the study setting, the question guide, and findings. This can assist in appraising whether factors individually or in combination influenced participant responses or investigator interpretations. The question guide should be relevant to the research question and designed to facilitate in-depth discussion. The study context and findings should be described in detail using "thick description." This approach provides comprehensive contextual information of the research setting to enable readers to assess whether the results capture the depth and scope of the data. Member checking and investigator triangulation ensures that analysis captures the range and depth of data.

Dependability

The concept of "reliability" is not applicable to qualitative research methods, given the interpretive approach, the findings are not able to be replicated or reproduced. Dependability, moreover, determines whether the research process is logical and auditable. To demonstrate the study was conducted using a rigorous and systematic approach, it is important to clarify how the data were collected and analyzed to demonstrate a coherent link between the findings, methods, and methodology. Use of audio or video recording, data transcription, and coding software enables transparency and auditability of the research process.

Transferability

Although generalizability of results and external validity is an important criterion in quantitative research, this is not feasible in qualitative research because these studies necessitate small-scale, in-depth conceptualized information. Transferability is the extent to which the concept and theories are relevant to other settings. The study should provide a detailed description of the study setting, participant characteristics, and healthcare framework. Furthermore, discussion of the extent to which the study findings resonate with published literature, and how such findings advance theoretical understanding, can assist readers to determine the transferability to their own context (1).

Confirmability

Confirmability is defined as the extent to which the study findings reflect the participant's perspectives, without being influenced or biased by the researcher's predetermined assumptions or agenda. This can be achieved by researcher triangulation, member checking, using quotations to link the findings to raw data, and researcher reflexivity (1).

Table 1. Proposed framework to guide appraisal of qualitative research

Key Constructs (6)	Definition	Strategies to Satisfy Criteria	Description
Credibility	Extent to which the research offers well-founded, reliable, and sensible explanations on the basis of evidence obtained	Appropriate question guide	Relevant to research topic and phrased to encourage open in-depth discussion
		Data triangulation	Multiple sources of information and methods to produce a more comprehensive set of findings
		Researcher triangulation	Multiple investigators from different disciplines with required knowledge and research skills to conduct the research
		Purposive sampling	Recruit participants who can provide diverse and comprehensive information relevant to the research question
		Theoretical saturation	Recruitment ceases when few or no new themes emerge from data already collected
		Thick description of data	Study context and findings discussed in detail
Dependability	Research conducted in a logical manner that can be audited	Recording data	Audio or video recording to capture all data. Field notes capture contextual details and nonverbal communication
		Verbatim transcription	Verbal data transcribed verbatim
		Computer software	Used to assist with storage, coding, and retrieval of data
Transferability	Fit within contexts outside the study situation	Detailed description of research context	Detailed description of study setting and participant characteristics
		Theoretical context	Findings are positioned within current theoretical or conceptual frameworks
		Comparison with other studies	Findings are within the context of other research conducted in different health care settings
Confirmability	Extent to which biases, motivations, interests, or perspectives of the inquirer influence interpretations	Researcher triangulation	Multiple investigators involved in data analysis, ensuring the coding and analytic framework captures all primary data
		Member checking	Participants provide feedback on preliminary findings that is incorporated into analysis
		Inclusion of raw data	Selected quotations or other raw data inserted to illustrate findings or themes provided
		Researcher reflexivity	Researchers' recognition of their own biases that may have influenced decisions made during the study

Examples of Qualitative Research in Nephrology

Timely Creation of Permanent Vascular Hemodialysis Access

It is recognized that timely creation of permanent dialysis access is important to improve health outcomes in those transitioning to hemodialysis. However, the rates of patients starting dialysis with permanent access remain suboptimal. Richard *et al.* (7) sought to examine the experiences of patients living with, and caring for, arteriovenous fistulas. An ethnographic study was conducted, which included semistructured interviews of 14 purposely selected participants, extensive field work, and observations during vascular access and dialysis. Transcripts from audio recordings and fieldnotes were analyzed through thematic synthesis. The overarching theme was vulnerability on the basis of dependence on the health care system and the integrity of their vascular access for survival. Patients' responses to their vulnerability were heightened bodily awareness, vigilance, and mistrust, which led to stigma relating to their vascular access. The insights generated through researcher immersion into the culture of hemodialysis can inform future research and interventions to address these feelings of vulnerability and improve patient experience.

Adolescent Kidney Transplant Recipients Perspectives on Medication Adherence

The period of adolescence for transplant recipients is particularly challenging, characterized by increased risk of nonadherence to treatment, loss to follow-up, and graft rejection leading to graft loss. Harwood *et al.* (8) sought to explore the lived experiences of adolescent transplant recipients with respect to medication adherence. This phenomenological study conveniently sampled adolescent transplant recipients to participate in semistructured interviews. Data analysis yielded an overarching theme: weighing risks and taking chances. Adolescents' perceptions of the risks involved in nonadherence weighed heavily on their decision making. Modifications to their regimen were driven by protecting "normality," peer reactions, and their self-concept and self-image. Such insights into the lived experiences of adolescent transplant recipients are key to overcoming the challenges faced in practice.

Shared Decision Making in Selecting Dialysis Modality

Morton *et al.* (9) sought to identify and rank characteristics of dialysis deemed most important to patients approaching dialysis and their caregivers. In total, 34 participants, including patients who were predialysis, or on dialysis, and caregivers, were purposely sampled to partake in focus-group discussions. A mixed-methods approach was adopted, which included a nominal-group technique to obtain patient ranking of dialysis characteristics and qualitative thematic analysis to understand the reasons underpinning these rankings. Overall, patients and caregivers most value treatment that enhances survival and can be undertaken at home. These findings can inform future work to enhance patient education and shared decision making to improve patient experience and outcomes.

Conclusions

The widespread shift toward improving patient-centered care and policy has highlighted the value of qualitative research in informing clinical practice and policy to improve health outcomes. Qualitative research methods elicit patients' values, and attitudes that explain their health-related decisions and behaviors. However, qualitative research is time and resource intensive, and is context dependent, so the findings may not be transferable to all populations and settings. As with all types of research, qualitative studies must be conducted using a rigorous approach, with transparent and comprehensive reporting. Authors can aim to improve rigor by following well-established principles and demonstrating the key constructs of credibility, confirmability, dependability, and transferability. Further contributions of qualitative research are needed to provide a broader evidence base to advance patient centeredness in nephrology practice and policy, overall improving outcomes that are important to patients. Examples of topics that can be addressed with qualitative research methods may include the challenges of transplant recipients and caregivers during the COVID-19 pandemic, attitudes to telemedicine services for long-term follow-up in transplantation, and shared decision making in end-of-life care.

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