

REVIEW

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The longitudinal qualitative research design in nursing, health, and social care research: philosophy, methodology, and methods

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Abstract

Background The longitudinal qualitative research (LQR) approach is an emerging design in nursing research which focuses on examining changes in experiences over specified timepoints. While some authors have tied this approach to a specific qualitative tradition such as phenomenology and case study, other authors have associated it with two or more qualitative methodologies. Yet, others have also argued it is untied to a specific qualitative tradition. Thus, there is palpable confusion regarding whether it is a methodology or merely a method. Additionally, its guiding paradigm or philosophical/ theoretical foundations remain poorly articulated or loosely defined within the broader qualitative research tradition.

Objective This methodological discussion paper sought to examine the guiding paradigm/ philosophical underpinning, methodology, and methods unique to LQR to ground it within the broader qualitative research tradition. A secondary goal, perhaps more nuanced, is to generate further scholarly discussions regarding LQR and its application to nursing, health, and social care research.

Design Methodological discussion

Findings When the term “longitudinal” is applied to a qualitative methodology, the emphasis is on repeated data collection informed by that methodology’s theoretical perspective. However, when LQR is used, then it is to be considered as a methodology characterised by a focus on change, meaning, and time grounded in context, an emphasis on participants’ own reflections of their subjective experiences and the researchers understanding of them. LQR emphasises reflective, second-order perspective (the world as experienced and perceived/ understood). With the need to uncover change across time, its dynamics, and mechanisms, LQR is argued to be potentially underpinned by the critical realist theoretical/ philosophical stance. Methodologically, LQR lends itself to methodical flexibility and pluralism. Despite its strengths, some challenges are noteworthy including attrition, time and resource demands, data management, ethical considerations, researcher bias, analytical complexity, contextual changes, and issues of transferability.

Conclusions LQR is a methodology fit for uncovering meaning, dynamics, and mechanisms of change over time and bound to specific contexts albeit its conduct requires careful planning and availability of adequate resources.

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Keywords Epistemology, Health, Longitudinal, Nursing, Ontology, Paradigm, Social care, Qualitative research

Background

In the realm of research, qualitative designs are generally employed to uncover, understand, and interpret experiences and perceptions. With their unique theoretical underpinnings and philosophies, qualitative research presents diverse methodologies to uncover both first and second-order perspectives. The diverse qualitative methodologies commonly employed in nursing, health, and social care research include grounded theory, phenomenology, narrative inquiry, phenomenography, and ethnography. Over the decades, the longitudinal qualitative research (LQR) design, also referred to as qualitative longitudinal research (QLR) has emerged as an approach to facilitate qualitative data collection (interviews, observations, and text documents) across a time span with the same participants and/or in the same setting [1, 2]. Defined as a set of research methods/approaches that helps to uncover an experience or behaviour across time, the LQR approach does not only uncover how the participants construct meanings around their experiences or change, but the approach also answers the question “how did this change?” “how is this different?” “why did this change?” “what remains the same?” [3]. Thus, compared to the more traditional qualitative approaches which offer a snapshot understanding of experiences and perceptions [4], LQR uncovers how these experiences and perceptions change over time [5]. A sample of studies employing the LQR approach in healthcare/nursing field is presented in Table 1. These studies were selected based on their focus on utilizing the LQR approach in the healthcare field.

The LQR focuses on qualitative questions regarding experiences and perceptions of change, or sometimes stability, over time. Compared to longitudinal quantitative designs, the LQR seeks to capture “individual narratives and trajectories” highlighting the “critical moments” and processes involved in change [1]. Arguably, qualitative research seeks to uncover the how and why nursing, health, or social care is experienced whereas LQR extends further to examine how (mechanisms and process) and why these experiences change over time. As highlighted by Saldana, LQR is underpinned by duration, time, and change with both time and change appearing contextual which could transform during the study [6]. Not only is change over time incorporated in LQR, but also, data analysis relies on time as a frame of reference and as highlighted by Saldaña [3], “time is data”. Thus, the LQR is distinguished from other qualitative designs by the way in which time is incorporated into the research process [5].

Although LQR can be a stand-alone study, it can also be particularly helpful as part of interventions [5]. Indeed, LQR studies can be embedded within clinical trials or evaluation studies and as part of process evaluation [1]. Its inclusion in interventional studies can help to uncover not only if the programme works, but also the mechanism of change through which it works, its feasibility, and acceptability. In this way, a greater explanatory power can be attained, that is, being able to ascertain *what* works, *why* it works, *how* it works, and for *whom* it works. This is to say that the inclusion of LQR in interventional studies will not merely uncover experiences or behaviours, but the changes in these at varying timepoints as specified in the study. In this way, the researchers would be able to ascertain not only the effects of the intervention, but also, what changes occurred and how they occurred. With its increasing popularity in nursing, health, and social care research, LQR has been employed to examine changes in nurses’ experiences with health information technology [10], socialisation of pre-registration student nurses [11, 12], changes in the personal dignity of nursing home residents, perceptions of caring held by nursing students [13], and living with haemodialysis [14, 15].

Despite the uniqueness and potential impact of LQR, confusion still exists in existing literature regarding its place within the broader qualitative research tradition. While some authors have tied LQR to a specific qualitative tradition such as grounded theory [16, 17], phenomenology [18, 19], and case study [20, 21], Bennett, Kajamaa [22] have argued that LQR as untied to a specific methodology, offering researchers the flexibility to develop an appropriate design fit for their study. This latter assertion is congruent with that of SmithBattle, Lorenz [5] as they presented LQR as a generic term which can be associated with any of the existing qualitative methodologies such as phenomenology, grounded theory, and ethnography. More confusing is the fact that other authors have associated it with more than one qualitative tradition [23, 24].

McCoy [25] has also argued that the ontological and epistemological foundations of the interpretative phenomenological analysis (IPA) seem to fit well with LQR which makes longitudinal IPA an appropriate methodology. Other authors have also highlighted how aspects of the LQR elements can be included in mixed-method designs, thus, leading to the notion of longitudinal mixed-methods rather than a distinct longitudinal qualitative design [26]. These assertions seem to suggest that LQR is a method rather than a distinct methodology in its own right. Yet, in contrast to these, other researchers have also argued that LQR is an emerging methodology rather than only a method. For instance, Thomson,

Table 1 Research objectives addressed in studies employing LQR

Authors/Year	Study setting	Research objective	Sample size & Timing	Data analysis approach
Clermont et al. [7]	Niger	To examine the factors influencing acceptability and utilization of these three supplements among a rural population in southern Niger using a longitudinal, mixed-methods design	84 pregnant women, their families, and healthcare providers; two phases of data collection over 6 months	Inductive coding and drawing from grounded theory approach and use of thematic matrix.
Hatcher et al. [8]	Kenya	To explore participant definitions of mental health, perceived changes in mental health due to the intervention, and mechanisms through which the intervention may have influenced mental health outcomes.	In-depth interviews were conducted with intervention participants ($n = 45$) and control participants ($n = 9$) at two time-points (after intervention start and upon intervention end).	Thematic analysis
Zeilani & Seymour [9]	Jordan	To explore experiences of Jordanian Muslim women in relation to bodily change during critical illness.	A purposive sample of 16 Jordanian women who had spent a minimum of 48 h in intensive care participated in one to three interviews over a 6-month period.	Riessman's method of narrative analysis

Plumridge [27] noted in their editorial that what establishes LQR as a unique design within the broader qualitative research tradition is the deliberate way in which “temporality” is inculcated into the research process and the emphasise on change as the central focus of analytic attention (p.185). Tuthill et al. have also highlighted the lack of information regarding LQR methodology and techniques as well as some methodological confusion based on the diverse data collection methods and materials used in LQR research. Adding to these concerns is the fact that a recent scoping review has reported significant variations regarding the use of methodological traditions, type of data, length of data collection, and components of longitudinal data collection across 299 health-related studies that have employed LQR [28].

Further to the methodological and methodical confusions regarding LQR is the general lack of theoretical and methodological literature specific to this approach [5]. A rapid review of seven textbooks on qualitative research revealed that no single chapter was dedicated to LQR with only one book making reference to the design in its index [29–35]. Though recent studies have highlighted LQR as a unique methodology [5, 36], its theoretical/philosophical basis to inform its methodology and methods still remains poorly articulated suggesting that, perhaps, the LQR remains loosely defined and its place within the broader qualitative research tradition is still unclear.

With the palpable confusion about LQR, there exist no critical evaluation to date articulating its philosophical/theoretical underpinnings to ground it as a unique methodology. Critically examining its theoretical basis, methodology, and methods are very essential from the methodological perspective to attain clarity regarding the approach and to evaluate studies that have employed LQR. So, the question remains if it is possible to ascertain the theoretical/philosophical basis of LQR to offer

clarity and carve it as a distinct methodology rather than merely associated with the existing traditional qualitative designs. To this end, this methodological discussion aims to examine the guiding paradigm/philosophical underpinning, methodology, and methods unique to LQR to ground it within the broader qualitative research tradition. A secondary goal, perhaps more nuanced, is to generate further scholarly discussions regarding LQR and its application to nursing, health, and social care research.

Philosophical/theoretical perspectives

Although the origins of LQR remain poorly defined, some key assumptions can be deduced which can inform our understanding of the philosophical/theoretical perspectives of this unique design [36]. The first assumption is that LQR is underpinned by the notion time and change grounded in context [36, 37]. Undoubtedly, LQR can occur over months or even years, yet the notion of time goes beyond the mere depiction of the chronological, linear sequence and passage of time. Instead, it also seeks to uncover how the participant experiences the passage of that time and its meaning [37]. To one person, time may be moving rather quickly whereas another may feel that it is slow based on their individual life experiences at that material time. Given that time and our lived human experiences that occur within that “time” are both contextual, the change that occurs over time is also contextual [36, 37]. The change that happens over time may not necessarily be “linear or ordered journey” [36] and the focus is not to establish some form of definitive endpoint but to capture the “depth of transitions” [36]. The change is assumed to be multifaceted and holistic where “continuity, patterns, idiosyncrasies, and contexts” are significant aspects [36].

Another core assumption of LQR is its focus on the nature of the human experiences. These are viewed as constructs of the participants’ own reflections and the

researchers understanding of them [36]. This suggests the existence of co-constructed multiple subjective realities (how the participant articulates the experience and how the researcher understands these) [25]. Considering the focus on contextualised change that occurs across time captured as constructs of the participants' reflections suggest a focus on second-order perspective (that is, the world as experienced and perceived/understood) [38]. This feature potentially distinguishes LQR from other qualitative emphasise pre-reflective first-order perspective (the world as experienced) [38]. The focus on uncovering not only the change that occurs across time, but also, how and why the change is occurring within unique contexts may align LQR with the critical realist philosophical/theoretical perspective.

Critical realism, also referred to as depth realism, reflects a philosophical stance based on the belief that different ontological layers of reality exist [39, 40]. Critical realism emphasises the importance of uncovering the underlying mechanisms and causal powers that generate observable events, experiences, and perceptions [40]. In LQR, this means looking beyond surface-level descriptions to understand the deeper, often hidden, structures and processes that drive changes over time.

Ontology

Ontologically, reality is layered or stratified with different levels of mechanisms and structures producing the changes across time. These stratified ontological levels are described as empirical, actual and real [40]. By this stratification, critical realism permits going beyond the empirical to uncover the generating mechanisms (real and actual) to explain what can be observed; thus enabling a more inclusive picture of the complex world than we would achieve if we were to use only positivism, post-positivism or constructivism [39, 40]. The empirical aspect refers to the level of experiences and observations and includes what we can perceive and measure. The actual aspect encompasses events that occur, whether or not they are observed. The real aspect is the deepest level, consisting of underlying structures, mechanisms, and powers that generate events and experiences.

The ontological stance of critical realism also embraces the notions of emergence (higher levels of reality emerge from lower levels but are not reducible to them), causal powers (factors that can bring about changes in the world), and intransitivity (existence of structures and mechanisms is independent of human knowledge or perception) [39]. These perspectives are valuable in longitudinal research, where researchers can observe and uncover why and how new patterns, behaviours, or structures emerge over time [36]. Critical realism further acknowledges the complexity of social phenomena and the importance of context [39]. LQR, which involves

studying subjects over an extended period, is well-suited to capture this complexity and the evolving contexts in which the phenomena of interest occur [36].

Epistemology

Epistemologically, critical realism ascribes to relativism, that is, acknowledging that our knowledge of reality is always mediated by our perceptions, theories, and social contexts. This means that while there is an objective reality, our understanding of it is always fallible and subject to revision. Both transitive (refers to the changing theories and knowledge we have about the world) and intransitive (relatively stable structures and mechanisms of the world itself) dimensions present as key epistemological principles. The relativist epistemology also embraces fallibilism (knowledge is provisional and subject to change in light of new evidence or better arguments), judgmental rationality (despite the fallibility of knowledge, it is possible to make rational judgments about which theories are better or closer to the truth), and epistemic relativity (knowledge is always mediated by our perspectives and contexts) [39]. Put together, critical realism acknowledges that our knowledge is always mediated by our perspectives and contexts (epistemic relativity) but also asserts that it is possible to make rational judgments about the validity of different explanations (judgmental rationality) [39]. Thus, researchers employing LQR can remain open to multiple perspectives and interpretations while rigorously evaluating the evidence to make well-founded judgments about the phenomena under study [36]. Additionally, it also implies that methodological flexibility and methodical pluralism remains at the core of critical realism. This is to say, critical realism supports the use of multiple methods to capture the complexity of social phenomena. Longitudinal qualitative research can benefit from this by incorporating various data collection and analysis methods to provide a richer, more comprehensive understanding of the phenomena [36].

Critical realism encourages reflexivity, where researchers critically reflect on their own role, assumptions, and potential biases in the research process [39, 40]. This is particularly important in longitudinal research, where the researcher's relationship with the subjects can evolve over time [39, 40]. Researchers can maintain a reflexive stance, regularly reflecting on how their interactions with participants and their own evolving understanding might influence the research process and findings.

Comparing LQR and grounded theory

The LQR approach is defined by its dual identity: firstly, it is longitudinal and secondly, it is a qualitative approach. From its longitudinal stance, the approach follows the same individuals or small collectives (such as households) prospectively in real time, as their lives unfold. With its

qualitative roots, the LQR approach employs a dynamic approach to gain in-depth insights into the experiences of participants over time. Though these unique features may also seem to apply to grounded theory, significant differences exist in comparison to the LQR approach. Whereas grounded theory focuses on understanding the processes and interactions that shape social phenomena (acknowledging that these phenomena are dynamic and context-dependent), LQR is concerned about how realities change and evolve over time, emphasising the temporal aspects of social life and the continuity and change within it. Another key difference is the fact that whereas grounded theory employs a theoretical sampling approach based on emerging concepts to recruit potential new participants, the LQR approach follows-up on the same group of participants.

The notions of time and change further highlight the uniqueness of the LQR approach. As Neale argues (p.2) A key assumption of the LQR approach is that it is through “time that we can begin to grasp the nature of social change, continuity, the mechanisms through which these processes unfold, and the ways in which structural forces shape the lives of individuals and groups and, in turn, are shaped by them” [41]. That is, only time affords a better understanding of how agency and structure are interconnected and how they come to be transformed [42, 43]. Though grounded theory also emphasises that meaning is made and constantly changed through interaction and modified in light of new discoveries relative to time and place, these discoveries are assumed to be embedded in social context [44, 45]. Contrast with LQR, these meanings are considered to be constantly evolving with the passage of time [43].

Core features of LQR and methodological approach

Informed by critical realism, LQR is presented as a dynamic and iterative process that involves careful planning, flexible data collection, and rigorous analysis to understand how and why phenomena change over time. By capturing the complexity and context of these changes, researchers will be able to provide deep, nuanced insights into the processes and mechanisms that drive social, behavioural, and organisational transformations. Although no fixed rules currently exist regarding the LQR methodology, the following suggestions can be gleaned from studies that have employed the study alongside the critical realist philosophical stance:

- **Temporal depth:** The goal of LQR should focus on understanding not only the changes across time, but also uncovering the underlying mechanism and causal relationships that drive the observed changes [25]. It is crucial to ensure that the questions are

broad enough to capture the complexity of the phenomena albeit specific enough to guide the research process and help to ascertain the scope of the study to effectively capture, interpret, and understand the changes [36]. By collecting data over time, researchers can capture the dynamics of change and continuity. This temporal dimension allows for the study of how individuals, groups, or phenomena evolve, providing insights into processes that are not apparent in cross-sectional studies. While qualitative research does not aim to establish causal relationships in the same way as quantitative research, longitudinal qualitative studies can provide insights into causal mechanisms by exploring how changes unfold over time and identifying factors that contribute to these changes.

- **Processual understanding:** Longitudinal qualitative research is well-suited for exploring processes and sequences of events. Although the notion of “processes” here may seem congruent with grounded theory, LQR goes further to understand how and why changes occur, identifying key turning points, and examining the factors that influence trajectories over time. By capturing data at multiple points in time, researchers can explore the complexity and nuance of human experiences. This approach can reveal patterns and variations that might be missed in single-time-point studies. There should be a clear plan for multiple data collection points to capture the evolution of phenomena and contexts. Two key issues are worth highlighting here: firstly, the length of time required for the study to be considered longitudinal is not definitive and secondly, the definition of change remains poorly articulated [46]. To overcome these, Tuthill, Maltby [36] have recommended the use of a theoretical framework selected based on the research objectives to identify concepts relevant to the phenomenon under investigation and how these concepts may change over time. For example, using Theory of Transitions, it is possible to unpack concepts such as health behaviours that occur across time and across a transition (from pregnancy to post-partum period) [47]. A theoretical framework should be chosen at the beginning of planning the study to inform population of interest, data collection content, timing of data collection, and data analysis plan [33]. Additionally, identifying the target population and adequate sample size and adequate personnel can help to overcome these challenges [36].
- **Contextual richness, methodical pluralism and flexibility:** The LQR approach allows researchers to explore the context in which changes occur. By understanding the broader social, cultural, and

historical context, researchers can better interpret the meanings and implications of the changes observed. The iterative nature of longitudinal qualitative research allows researchers to adapt their focus and methods as new insights emerge. This flexibility can lead to more nuanced and comprehensive understandings of the phenomena under study. The study should be designed to employ diverse qualitative methods to gather rich, contextualised data at different time points. This can include interviews, focus group discussions, observations and document review. The choice of a particular approach will be based on the unique circumstances at the material time. The data analytical approach should look for patterns, mechanisms, and emergent properties across the data, considering different levels of reality and their interactions.

- Interpretations and reflexivity: Longitudinal studies often involve repeated interactions with participants, which can lead to deeper relationships and trust. This ongoing engagement can result in richer data, as participants may feel more comfortable sharing their experiences and perspectives over time. Rational judgments about the study findings, considering the complexity and context of the phenomena will be needed congruent with epistemic relativity and judgmental rationality of critical realism [39, 40]. Reflexivity is also critical to this design [39, 40]. Thus, researchers engaged in LQR should continuously reflect on the research process, the researcher’s role, and the evolving understanding of the phenomena [39, 40] (see Table 2).

Methods: sampling, sample size, and data saturation

Participants in LQR are selected based on their shared experience of the phenomenon being explored. However, it must be emphasised that the experience of a

participant is distinct and close observers such as relatives and other loved ones may also be in the position to offer useful insight [48]. The sampling approach in LQR may involve a combination of purposive, theoretical, and sometimes snowball sampling strategies to select participants who can provide rich, relevant, and diverse data over time [28, 36]. Purposive sampling approach can offer participants who are most likely to provide rich, relevant, and diverse data related to the research questions using specific criteria. Theoretical sampling approach will be considered as an emergent design to enable the researchers to adjust the sample as the study progresses based on emerging findings and theoretical considerations. As an iterative process, theoretical sampling will help to continuously refine the sample to explore new dimensions of the phenomena and develop a deeper understanding. Snowball sampling, if used, will be to expand the sample and to reach individuals who may be difficult to identify initially.

Though some authors have suggested that data collection should be with the same sample [37, 49], other authors also argue it should be at the same site but with a different sample at each time point [27]. From the critical realist perspective, the same sample may however be more appropriate so as the capture the stratified realities unique to the original participants [39, 40]. Other key considerations include defining clear inclusion and exclusion criteria, determining the timing and frequency of data collection, ensuring participant retention, and maintaining ethical standards [36]. Reflexivity and adaptability are also crucial, allowing researchers to respond to emerging insights and challenges throughout the study. By carefully planning and executing the sampling approach, researchers can ensure that their longitudinal qualitative research captures the complexity and dynamics of the phenomena under study.

Determining sample size remains a rather challenging area in LQR. This is on the basis that given the longitudinal nature of such studies, a level of attrition may be expected as some participants may migrate or even die. In a recent systematic review of studies employing LQR in nursing, attrition emerged as either a significant limitation or a strength [5]. Saldaña [37] has recommended LQR studies should commence with more participants than anticipated to attain saturation. Apart from data saturation, sample size may also be guided by information power. This will be based on the study aim, sample specificity, use of an established theory, quality of dialogue, and analytical strategy. For instance, a broad study aim as usually occurs in LQR studies necessitates a larger sample size to provide adequate information power, as the phenomenon being investigated is more extensive. Sample sizes reported in existing studies include 19 nurses with three time points of data collection (3, 9, and 18

Table 2 Summary of core features of the LQR approach

Core feature	Summary
Temporal depth	Uncovering, interpreting, and understanding the changes across time in a given context and the underlying mechanisms that drive the observed changes.
Processual understanding	Exploring processes and sequences of events across time.
Contextual richness, methodical pluralism, and flexibility	Capturing the broader social, cultural, and historical context wherein the change occurs using various qualitative approaches.
Interpretations and reflexivity	Move beyond mere descriptions to interpret the changes over time and what they mean; and specifying researcher positionality.

months) [10], 26 nurses at two time points [50], and 16 at two time points [12]. Given the variations in sample, it may be rather challenging to prescribe a specific size or its subsequent overestimation to overcome concerns associated with attrition. Thus, this may be best decided by the research team based on the stability of the target population [36].

Methods: data collection

Data collection in longitudinal qualitative research involves a combination of methods to capture the complexity and dynamics of the phenomena under study. In-depth interviews, observations, document analysis, visual methods, focus groups, digital and online methods, and reflexive journals are all valuable tools for gathering rich, detailed data over time. By using multiple methods and maintaining flexibility, researchers can ensure a comprehensive understanding of how and why changes occur, providing deep insights into the processes and mechanisms driving these changes. Steps to consider when planning for data collection in LQR will include operationalising concepts including time and change unique to the study, ascertaining the type of data to be collected, the approach to be used, and subsequently, triangulation of the data [36]. A scoping review that examined the use of LQR across 299 studies observed that most of the included studies used either individual interview ($n = 167$), a combination of methods ($n = 98$), including 45 articles reporting both qualitative and quantitative (survey) data. Other studies have described the interview approach as serial interviews given the frequency it has to occur [1, 51]. These interviews are undertaken using a topic guide appropriate for the phenomenon of interest.

With the semi-structured approach, the time between data collection time points will offer the research team an opportunity to review the emerging data and refine the topic guide accordingly. Follow-up interviews will then build further on the preceding ones rather than duplicate the previous data [36]. Essential in the data collection process is a need for process notes/interview summaries and ongoing debriefing to ensure that the follow-up interviews are on target [36]. Documents, if used, are generally considered complementary to the interview data [28]. Triangulation of data is warranted to validate emerging findings and help to attain methodological rigour/trustworthiness. Tuthill, Maltby [36] have recommended that findings from in-depth interviews can be compared to findings from focus group discussions to ascertain completeness. The use of exit interviews has also been recommended which requires the researcher to present the findings to each participant and seek feedback as a form of member checking [3].

Methods: data analysis

Data analysis in LQR involves a combination of methods to systematically examine data collected over time. Thematic analysis, narrative analysis, grounded theory, framework analysis, content analysis, visual analysis, cross-case analysis, and reflexive analysis [25, 27, 36] are all valuable tools for understanding patterns, changes, and underlying mechanisms. By using these methods, researchers can capture the dynamic nature of the phenomena under study and provide deep insights into how and why changes occur. Maintaining flexibility and reflexivity throughout the analysis process is crucial for adapting to new insights and ensuring the rigor and validity of the findings. Regardless which approach is used, it is important for the research team to consider an analytical approach early in the study, set up an analytic roadmap, undertake transcription and translation (if required), and become familiar with the data [3, 36]. The analysis and data collection may be conducted simultaneously, and ideas arising in the analysis could be followed up by returning to the participants, recruiting more participants with specific experiences, or collecting complementary types of data materials [28].

Following the initial steps of transcribing, translating, and coding, LQR data analysis often proceeds on a cross-sectional basis beginning with the first round of data and repeated for all timepoints [36]. Afterwards, the analysis can move from the cross-sectional approach (descriptive) to exploratory (uncovering the generative mechanisms or causes and consequences of the change or lack of change across time) [52]. Exploring the data in the longitudinal sense remains poorly described in existing literature and this is further complicated by the rise in variants such as the longitudinal IPA [25]. That said, the primary focus is to ascertain the patterns of change across the time points. Also from the critical realist standpoint, it should the generative mechanisms that may help to explain the change occurring or not occurring across time.

Methods: rigour/trustworthiness

To establish trustworthiness, Lincoln and Guba's framework can be applied. This comprises of credibility, transferability, confirmability, and dependability [53]. Strategies to ensure these have been thoroughly addressed in existing nursing and health research literature. Further to this, the Bricolage approach which emphasises competence (knowing the range of analytical moves available to design and implement a study and when and how to use them), integrity (coherence between the research question, sampling, analysis, other methodical components), and benevolence (establishes that authors are not doing violence to experience,

that they are able to communicate how the insights of the people or places they examined served to inform their theorizing) could be applicable to attain trustworthiness [54]. What is more, the emphasis of LQR on change over time warrants a thick description of these. Thus, by employing thick description, authors employing LQR can provide rich and detailed accounts of the meanings, contexts, and interpretations of experiences and human behavior [55, 56]. Attaining thick description goes beyond mere description of facts or events to offer a deeper interpretation of the meanings, contexts, and implications of the phenomenon [56]. Strategies to improve thick description include use of multiple data sources, providing detailed descriptions of the settings, interactions, events, actions, and emotions, explaining the meanings of observed phenomena, and situating the findings within the broader social, cultural, historical, and theoretical contexts that shape and inform them [56]. More practically, the need for ongoing discussions about procedures and peer debriefing are paramount. The methodical flexibility offered by the design creates a great need to ensure that all decisions and accompanying justifications are clearly documented. Also, the need for self-reflection and positionality are critical in LQR to ensure reflexivity. Evidence of triangulation and transparency are also significant considerations for this approach.

Challenges associated with the LQR design and strategies to consider

The LQR design is not without challenges. Attrition remains a major concern as participants are likely to dropout of the study from one timepoint to the other [57]. More so is the need to keep participants engaged over a long period. To mitigate these, it may be essential to overestimate the initial sample size, maintain regular communication with participants, offer incentives if ethically approved, and build strong relationships with the study participants. Undertaking LQR can be daunting and resource intensive which will require proper planning, coordinated team efforts, and availability of adequate funding.

Data management may also be another issue associated with the LQR design [58]. Series of data collection can result in a large volume of data that is challenging to manage and analyse [36]. Additionally, ensuring consistency in data collection methods and maintaining the quality of data over time can be challenging. Further to these is the analytical complexity resulting from data collected across various timepoints. To manage these, it may important to develop clear protocols and guidelines for data collection and offer regular training to team members to improve consistency. Qualitative data analysis software such as NVivo can be used to organise

and manage data effectively. Using systematic analytical methods such as time-ordered matrices and longitudinal coding may be helpful to manage analytical complexity [36]. In terms of ethical considerations, obtaining and maintaining informed consent over an extended period can be complex. Thus, there is a great need to reiterate the consent process at multiple stages and ensure participants are fully informed about any changes in the study at each timepoint. Transferability may particularly be difficult to establish considering the findings will be context-specific and time-bound. This makes it cogent to provide thick descriptions and detailed contextual information to enhance transferability [56].

Conclusion

When the term “longitudinal” is applied to any of the existing qualitative methodologies such as grounded theory, it describes repeated data collection albeit the design will be underpinned by the theoretical perspective of that qualitative methodology employed. However, when the term LQR is used, then it is in reference to a methodology or design seeking to uncover both meaning and change. LQR design underpinned by the critical realist theoretical/philosophical stance offers valuable insights into the dynamics and mechanisms of change over time. Despite its unique strength in uncovering dynamics and change, it also presents several challenges. These include participant retention, time and resource demands, data management, ethical considerations, researcher bias, analytical complexity, contextual changes, and issues of generalizability. Addressing these challenges requires careful planning, flexibility, and the use of robust strategies to ensure the rigor and validity of the research. By anticipating and mitigating these challenges, researchers can successfully conduct LQR that provide deep and meaningful insights into the phenomena under study.

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JB and FKN conceptualised the study; JB, FKN, WA, & WA performed the review, completed the manuscript, reviewed for its content, and approved the final manuscript.

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