



The pillars of trustworthiness in qualitative research

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ABSTRACT

The global medical and nursing research community has increasingly embraced qualitative research approaches, recognizing the additional benefits they provide to the investigation process. Qualitative research explores the intricate details of human behavior, attitudes, and experiences, emphasizing the exploration of nuances and context. Ensuring trustworthiness is crucial in establishing the credibility and reliability of qualitative findings. This includes elements such as credibility, transferability, dependability, and confirmability. Several papers have discussed concerns regarding the rigor of qualitative health services research and have provided guidelines and checklists for publishing and conducting qualitative research. The key criteria for ensuring the quality of qualitative research include credibility, achieved through extended involvement, persistent observation, and triangulation; transferability, achieved through comprehensive and detailed explanations; dependability, achieved through rigorous documentation and the creation of an audit trail; and confirmability, achieved through peer debriefing, member checking, and reflexive journaling. Establishing reliability in qualitative research is crucial for influencing future research paths and advancing cumulative knowledge. Trustworthy qualitative research findings are also important for informing policy decisions and improving the provision of services in various fields. While qualitative research has limitations, such as subjectivity and resource constraints, the methodical application of measures to ensure trustworthiness greatly enhances the precision and reliability of qualitative research. These measures also encourage transparency and critical evaluation by the scholarly community.

Dear Editor,

The global community of medical and nursing researchers has increasingly embraced qualitative research approaches. This surge is seen in their autonomous utilization or incorporation as essential elements within mixed-method research attempts [1]. The growing trend is driven by the recognized additional benefits that qualitative approaches provide to the investigation process [2,3]. Qualitative research is a methodological approach that explores the intricate details of human behavior, attitudes, and experiences. Qualitative research diverges from quantitative research by emphasizing the exploration of the nuances, context, and underlying significance of observed occurrences rather than relying on numerical data [4]. Qualitative research always prioritizes rigor and truth [5]. Ensuring trustworthiness is crucial in establishing the credibility and reliability of qualitative findings, given their subjective nature [6]. The concept of trustworthiness in qualitative research comprises various essential elements, such as credibility, transferability, dependability, and confirmability [2,6–9].

In recent years, several papers have discussed concerns regarding the rigor of qualitative health services research. A recent study emphasized the significance of displaying rigor in qualitative pharmacy research and provided concise explanations of methods to guarantee its rigor. Hadi and Closs provided a concise overview of pharmaceutical research in their work, highlighting areas where the demonstration of rigor is lacking [10]. In the realm of pharmacy education, guidelines were presented for publishing qualitative research, including checklists [11]. Additionally, best practices were outlined for the systematic process of developing, conducting, and reporting qualitative research, emphasizing the importance of quality attributes [12]. Another significant

publication included guidelines for essential elements in carrying out qualitative research, elucidating the procedure, presentation, and contextualization of findings in studies related to pharmacy education [13]. In a more general manner, Tong et al. present a unified set of criteria for reporting qualitative research (COREQ) that includes a 32-item checklist [14]. This checklist is designed to assist researchers and reviewers in evaluating and incorporating the ways in which a qualitative research article details the research team, methods, context, findings, analysis, and interpretations [2]. In order to make it easier to evaluate the methodological quality of qualitative investigations, this tool was created along with numerous others [15]. A qualitative project's quality cannot be guaranteed by using a checklist, even though it is useful for making sure all aspects of the project and its procedures are measurable. In light of the increasing use of qualitative research methodologies, it is crucial to provide thorough guidance to ensure the quality of the methods used. This article aims to provide a comprehensive strategy that considers both the theoretical foundations and practical aspects necessary for ensuring the quality standards of qualitative research projects. Examining the theoretical framework, it thoroughly explains the important criteria identified by Lincoln and Guba, which are credibility, transferability, dependability, and confirmability [16,17].

The degree to which the findings accurately reflect the reality that the participants experienced is a fundamental aspect of qualitative research. Researchers develop credibility by engaging over extended periods, observing persistently, and using triangulation [6]. Extended involvement entails dedicating ample time in the field, engaging with participants, and closely studying their activities, enabling researchers to acquire comprehensive insights [18]. Persistent observation involves

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keeping an open-minded attitude, recognizing personal biases, and practicing self-reflection throughout the entire study process. Moreover, the utilization of triangulation, which involves the integration of many data sources or approaches, helps to validate findings, enhancing their credibility [19].

Transferability pertains to the degree to which the research findings can be extrapolated to alternative contexts or situations [20,21]. Qualitative researchers aim to offer comprehensive and intricate depictions of the study's environment, participants, and procedures to enhance the potential for transferability. By providing detailed and comprehensive explanations, researchers allow readers to evaluate how applicable the findings are to similar situations, thus improving the study's transferability.

Dependability pertains to the enduring and unwavering nature of the research findings across time [20]. In order to assure reliability, researchers rigorously document their approaches, techniques for data gathering, and procedures for analysis [2]. Creating and preserving an audit trail, which consists of a comprehensive log documenting the decisions made throughout the research process, allows other researchers to reproduce the study, therefore guaranteeing the dependability of the results [22].

Confirmability pertains to the impartiality and objectivity of the findings, guaranteeing that they remain unaffected by any biases or preferences of the researchers [20]. Researchers utilize different approaches to improve the confirmability of their findings, including peer debriefing, member checking, and reflexive journaling [2,17,23,24]. Peer debriefing entails soliciting input from colleagues or experts to authenticate interpretations and mitigate researcher bias [2,17]. Member checking, a process in which participants thoroughly examine and validate the accuracy of the findings, enhances the level of confirmability. In addition, reflexive journaling enables researchers to record their thoughts, biases, and reflections, promoting transparency and reducing subjectivity. Table 1 demonstrates the meticulous guarantee of trustworthiness by employing essential measures. Extended interaction fostered a strong connection with participants, resulting in a subtle and profound understanding. Reflexivity helped to reduce biases, ensuring objectivity was maintained throughout. The credibility was strengthened by triangulating data from other sources. The importance of transparent contextual descriptions and sampling procedures was highlighted in order to enhance transferability. The methodological documentation and audit trails ensured the dependability of the data. Finally, the correctness and objectivity were confirmed through peer debriefing, member verification, and reflexive journaling. These measures together strengthened the trustworthiness of the research, ensuring robust qualitative rigor.

Establishing reliability in qualitative research is crucial for influencing future research paths. Researchers can utilize reliable discoveries as a basis for information, which can then inform the development of hypotheses and the planning of future investigations. Moreover, the transparency and thorough documentation that are typical of reliable qualitative research play a role in advancing cumulative knowledge by allowing for the replication, expansion, or incorporation of findings into theoretical frameworks [25]. Consequently, this promotes the development of new models, stimulates innovative approaches, and cultivates cooperation across other disciplines, ultimately enhancing the field of qualitative research.

Qualitative research, which is supported by the concept of trustworthiness, has important consequences for the development and execution of policies [26,27]. Policymakers depend on strong evidence to create well-informed and adaptable policies that tackle social concerns and foster fair outcomes. Reliable qualitative research findings, enhanced by a thorough understanding of the context and a range of views, are crucial evidence for informing policy decisions. By incorporating these discoveries into policy deliberations, legislators can formulate more comprehensive, culturally astute, and efficient laws that align with the actualities and requirements of varied demographics, thus

Table 1
Strategies for Ensuring Trustworthiness in Qualitative Research.

Trustworthiness Component	Strategies for Researchers	Detailed Information
Credibility	1. Prolonged Engagement: Spend adequate time in the field, building rapport with participants to understand their perspectives deeply.	Building trust and rapport with participants over time allows researchers to gain nuanced insights into their experiences, behaviors, and beliefs. It helps in capturing rich data that might not be immediately evident during brief interactions.
	2. Reflexivity: Acknowledge personal biases and preconceptions throughout the research process.	Being aware of one's own biases ensures that researchers can bracket these biases and maintain a more objective stance during data collection, analysis, and interpretation. This self-awareness contributes to minimizing potential distortions in the findings.
	3. Triangulation: Employ multiple data sources or methods (e.g., interviews, observations, documents) to cross-verify findings.	By utilizing various data collection techniques or sources, researchers can corroborate information from different angles, enhancing the credibility of the interpretations and reducing the impact of potential biases from a single method or data source.
Transferability	1. Thick Descriptions: Provide detailed contextual information to enable readers to assess the transferability of findings.	Thoroughly describing the research context, participants, and methods allows readers to evaluate the similarities between their context and the study, enabling them to judge the applicability and relevance of findings to their own settings or situations.
	2. Sampling Strategies: Clearly articulate the sampling process and criteria to justify the potential transferability of the findings.	Describing the sampling methods used and the criteria for participant selection assists in determining whether the findings might be applicable or transferable to similar populations or settings outside the study context.
Dependability	1. Methodological Documentation: Detail the research procedures and decisions made during the study.	Thoroughly documenting each step of the research process helps ensure transparency and allows others to replicate the study or assess the dependability of the findings by following the same procedures and understanding the rationale behind decisions made.
	2. Audit Trails: Keep an audit trail of research decisions, changes, and data analysis processes to ensure traceability.	Maintaining a record of decisions made during the study, including changes in methodologies or analyses, facilitates transparency and traceability. This audit trail aids in establishing the dependability of the research and provides insights into potential biases.
Confirmability	1. Peer Debriefing: Engage with colleagues or experts to review interpretations and	Seeking feedback from peers or experts helps validate interpretations and minimizes personal biases

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Table 1 (continued)

Trustworthiness Component	Strategies for Researchers	Detailed Information
	findings, minimizing researcher bias.	by introducing alternative perspectives, thereby increasing the objectivity and confirming the accuracy of the findings.
	2. Member Checking: Allow participants to review and confirm the accuracy of the findings to enhance confirmability.	Involving participants in the verification process ensures that their viewpoints and experiences are accurately represented, strengthening the confirmability of the findings by providing an opportunity for participants to validate or offer corrections to the interpretations.
	3. Reflexive Journaling: Maintain a reflective journal documenting personal thoughts, biases, and reflections throughout the study.	Keeping a journal helps researchers track their evolving thoughts, biases, and reflections during the research process. This reflective practice enhances transparency and provides insights into the researcher's subjectivity, contributing to the confirmability of the findings.

promoting social justice and fairness.

Integrating trustworthiness indicators in qualitative research has significant consequences for practical application [4–6,8,16,18–20]. Professionals from several fields can utilize reliable qualitative findings to enhance their comprehension of intricate phenomena, thereby improving the provision of services, treatments, and decision-making procedures. The discerning observations obtained from reliable qualitative research can assist experts in healthcare, social work, psychology, education, and other disciplines to customize solutions that better correspond to the requirements and encounters of individuals or communities. Furthermore, through encouraging introspection and cultivating a more profound comprehension of the viewpoints of those involved, professionals can improve their ability to comprehend and appreciate different cultures, therefore providing services that are more appropriate to the specific environment and more compassionate.

An essential limitation of qualitative research is its subjective nature [23]. Although researchers strive to mitigate biases and uphold impartiality by employing reflexivity and triangulation, the inherent interpretative character of qualitative research implies that the researcher's perspective might still impact the findings [6]. Researchers must consistently navigate personal biases, which could potentially influence the processes of data collection, analysis, and interpretation. Additionally, the demanding nature of specific methods to ensure trustworthiness, such as extended involvement and thorough documentation, may present difficulties in terms of time, financial resources, and practicality. Some research initiatives may lack sufficient time in the field or the requisite resources for comprehensive documentation and verification processes. This constraint could impact the level of profound understanding obtained or the degree to which discoveries can be verified and applied to other situations. Further, although techniques such as member checking and peer debriefing improve the reliability of results, there may be situations where participants or peers are unable to offer accurate validations or alternative perspectives due to factors such as social desirability bias, power dynamics, or a limited comprehension of the research objectives.

Although there are limitations, it is important to highlight the notable strengths of these tactics. The methodical application of these measures greatly enhances the precision and reliability of qualitative

research [24]. The diverse methods employed to improve trustworthiness, such as triangulation, reflexive journaling, and comprehensive documentation, collectively aid in reducing bias and strengthening the reliability of research findings. These activities enhance the comprehension of the studied phenomena, hence enhancing the qualitative research field. Moreover, the implementation of these strategies encourages transparency, which in turn facilitates the research process and makes it available for critical evaluation by the scholarly community. The thorough record-keeping and detailed examination of evidence conducted during the research process enhance the potential to replicate and scrutinize the findings, bolstering the credibility and reliability of qualitative research.

Ultimately, it is imperative to prioritize the establishment of trustworthiness in qualitative research in order to solidify the legitimacy and dependability of the findings. By ensuring credibility, transferability, dependability, and confirmability, researchers can enhance the quality of their research and make valuable contributions to the existing body of knowledge. By implementing rigorous techniques, maintaining transparency, and practicing reflexivity throughout the research process, qualitative research can achieve credibility and make significant contributions to diverse disciplines of study.

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The ethical approval was not required, as the study conducted did not involve any ethical concerns or issues.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

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