





Artificial Intelligence in Qualitative Research: Opportunities, Challenges, and Solutions

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New advances in artificial intelligence (AI) present significant opportunities for expanding and improving research, including qualitative research methods. Among the significant advantages of using AI in qualitative research are the ability to design, transcribe, and organize large volumes of data, data reduction, facilitation of the coding process, and interpretation of data (1). Despite these advantages, the use of AI in qualitative research can also cause challenges, some of the most important of which include the following: First, there are concerns regarding the alignment of qualitative research with the philosophy of interpretation. The use of AI, especially in automating qualitative data analysis, can be inconsistent with the principles of interpretivism (2) because it may ignore the subtleties of human communication, separate data from its real context, and process it in predetermined, algorithmic formats. Second, the use of AI in qualitative research can undermine the holistic approach of these methods, as intelligent algorithms are usually unable to understand context, lived experience, and complex nonverbal layers of meaning, and may lead to oversimplification of data or misinterpretation of results. While qualitative research relies on a deep and comprehensive understanding of a human phenomenon and requires a holistic and integrated view of the dataset and its internal meanings, the use of AI in qualitative research risks reducing interpretive depth. Third, issues related to algorithmic bias can distort research results and affect their representativeness and transferability to different contexts or populations. Because AI models are trained on the data they receive, they may contain biases and

prejudices. As a result, the models may distort the representation of some results, reproduce unfair patterns, or overemphasize some and underemphasize others in the data analysis. In qualitative research, where the goal is to represent data fairly, such biases can distort the results. Fourth, overreliance on automated tools can diminish the role of human analysts and threaten the interpretive nature of qualitative research. Increasing reliance on AI capabilities may reduce the emphasis on the critical and reflective role traditionally played by human analysts in qualitative research. This shift may lead to less in-depth analysis, as AI tools may not fully replicate the complex cognitive processes inherent in human analysis. Fifth, many AI algorithms, especially deep learning models, operate as “black boxes”; that is, the researcher cannot know exactly how the model makes decisions, which patterns it highlights, or why it interprets some data as being more important than others. This lack of transparency can undermine the rigor of qualitative research findings, which require accurate, traceable, and transparent interpretation of data. Sixth, ethical and data privacy concerns regarding the use of AI tools, especially with sensitive data, are important issues. In other words, AI tools are highly vulnerable to privacy violations because of their data-driven nature, and users often lack sufficient awareness of how their data are used (3).

In this regard, the following solutions are suggested for the responsible and effective use of AI in qualitative research: (1) The use of AI in qualitative research should be considered an assistant tool for humans and a complementary approach. Therefore, the results

produced by AI should be critically reviewed and interpreted by researchers; (2) the technological literacy of researchers should be improved so that individuals can become familiar with the limitations and capabilities of AI tools, how to use them consciously and critically, and use them with knowledge of these matters; (3) concerns have often been raised about the possibility that researchers deliberately avoid declaring or even mentioning the use of AI in their studies for various reasons, including the fear of criticism and rejection of their articles. However, documenting and reporting the role of AI tools in the different stages of research can be considered a positive step towards increasing transparency (4); (4) ethical protocols should be developed to comply with the standards of transparency, informed consent, and data protection. The construction and review of ethical expectations for AI in qualitative studies is not only necessary for researchers but also useful for stimulating deeper reflections. 5- It is essential that AI tools used in these fields are periodically evaluated, and their results are compared with those of studies without the intervention of AI to reduce biases.

Therefore, it can be concluded that AI can enrich qualitative research if used consciously, ethically, and with critical human thinking. However, it is also emphasized that ignoring its ethical and methodological challenges can have serious consequences. We hope that this issue will be considered by researchers and editors of scientific journals. Further research is needed to fully understand the best way to incorporate AI into the qualitative research process.

Footnotes

AI Use Disclosure: The authors declare that no generative AI tools were used in the creation of this article.

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