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EDITORIAL COMMENT

A new methodological series in CKJ: from basic-level methodology to artificial intelligence in medicine

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In the ever-evolving medical research landscape, methodological advancements are crucial to enhance our findings' accuracy, validity and relevance. As the field continues to grow and develop, we must adapt and refine our approaches to ensure that the knowledge we generate leads to meaningful improvements in patient care and public health. We present a series of methodological papers produced by a group of investigators with a 20-year collaboration history.

This collection of articles aims to address a wide array of topics, from the foundations of research design to the cutting-edge integration of artificial intelligence (AI) in medicine. We aim to provide readers with a comprehensive understanding of these concepts while fostering an ongoing dialogue about best practices and emerging techniques.

The series includes a review discussing the critical distinction between aetiological (causal) and prognostic models in medical research. This clarification is essential for the appropriate design, analysis and interpretation of studies and helps to prevent commonly made errors in the field.

Two articles focus on designing qualitative studies on the differences between objective and subjective outcomes in clinical studies. Both offer insights into study design and outcome measurement nuances.

Three papers covering various topics, including the long-term effects of treatments, the role of biomarkers and decoy receptors in clinical research and the concept of residual risk in clinical and epidemiological studies, delve into key aspects of clinical research that warrant careful consideration by investigators.

Next, we focus on the rapidly growing field of AI and its implications for medical research. Articles in this section provide an introductory overview of AI in medicine and a description of the application of large language models in the medical domain. A third article explores the intersection of AI and medicine, examining the role of causal inference in machine learning, and a fourth delves into the development and evaluation of prediction models that incorporate AI techniques.

This series may serve as a resource for researchers and clinicians, highlighting the importance of rigorous research design and the potential of emerging technologies in advancing medical knowledge. We hope these articles may deepen your understanding of these essential topics and inspire further exploration and innovation in the field.

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AUTHORS' CONTRIBUTIONS

All authors contributed equally to this paper.

CONFLICT OF INTEREST STATEMENT

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