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Mendelian randomization and Parkinson's disease
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Abstract
This chapter summarizes research related to Mendelian randomization (MR), a robust statistical technique employed to deduce causal links between exposures and outcomes in observational studies. First, we explore MR methods and their uses, clarifying their significance in epidemiological research. We then cover issues related to the execution of MR and provide valuable perspectives on how to effectively manage the intricacies of this approach. Finally, we examine the influence of various exposures on the likelihood of developing Parkinson's disease (PD), utilizing MR to reveal probable causal connections. We hope this chapter enhances readers' overall comprehension of MR and its adaptability, limitations, and utility in elucidating causal connections in intricate biological systems. The future development and application of MR have significant potential to enhance our knowledge of risk factors for PD and inform evidence-based interventions. © 2025 Elsevier Inc. All rights are reserved including those for text and data mining AI training and similar technologies.

Author Keywords
Assumptions; Exposure; Instrument variable; Mendelian randomization; Multiomics; Omics; Outcome; Parkinson's disease; Quantitative trait loci; Summary-based data

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