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Multidimensional Correlation Magnetic Resonance Imaging in Low- and Middle-Income Countries: Opportunities and Barriers to Equitable Deployment



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Abstract

Multidimensional Correlation Magnetic Resonance Imaging (McMRI) represents a promising advancement in medical imaging, offering enhanced diagnostic accuracy through the integration of multiple MRI parameters into unified datasets. In low-and middle-income countries (LMICs), McMRI could significantly

effective, non-invasive diagnostics. However, practical barriers remain: limited infrastructure, scarcity of trained personnel, high implementation costs, unstable power supply, and data governance challenges hinder widespread adoption. Addressing these issues requires efficient computational workflows, sustainable technology investment, and capacity-building initiatives tailored to LMIC contexts. This review highlights both the transformative potential and the practical obstacles of deploying McMRI in resource-constrained settings, underscoring the need for collaborative strategies that align technological innovation with healthcare equity.

Keywords

Challenges and Benefits, Computational Techniques, Diagnostic Imaging, Low- and Middle-Income Countries (LMICs), Multidimensional Correlation MRI

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