Interdisciplinary Systematic Review: A Novel Approach to Evidence Synthesis

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Abstract

Reporting on the newly started project *Interdisciplinary Systematic Review: A Novel Approach to Evidence Synthesis*

Keywords

intervention; EBM; mechanistic evidence; epistemic injustice; interdisciplinary systematic review; evidence synthesis.

How to Cite

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Though "evidence-based" is now a byword across a number of fields such as public health, medicine and law, the methodological question of how to establish whether a particular intervention or policy brings about the desired effect is somewhat lacking. Traditional evidence reviews, which aggregate and analyse data from individual studies, tend to focus on the question of *whether* an intervention works, rather than *how* or *why* an intervention produces its effects. Such orthodox evidence reviews of the kind described by the Cochrane Institute, tend to rely on limited studies, namely clinical trials, neglecting or devaluing the critical contribution of

mechanistic evidence which provides insight into the latter question.

The exclusion of mechanistic evidence in the current system of evidence review raises both epistemic and ethical issues:

On the epistemic side, the exclusion of mechanistic evidence makes it difficult to gain a comprehensive picture of efficacy and effectiveness. Understanding the mechanism of action can point towards factors that may compromise or enhance the efficacy of the intervention, for instance in the case of drug interactions or genetic variations. Additionally, mechanistic evidence is crucial for translating interventions in clinical settings into real world settings or public policy. Unlike traditional efficacy research, mechanistic research draws on work across a number of disciplines which is vital for implementation and wider adaptation, particularly of complex interventions. For example, in appraising whether a psychological intervention in prisons affects recidivism rates, researchers may draw on not only trials for the psychological intervention, but social science research into the factors that affect recidivism rates and how they interact with the intervention.

Ethically, the neglect of mechanistic evidence can result in replicating patterns of structural injustice and epistemic injustice. For example, in public health, it is widely acknowledged that individuals from BAME backgrounds tend not to seek and have issues accessing mental health treatment or certain types of cancer screening. Research into service and practitioner experiences as part of gaining mechanistic insights can contribute to solving such problems of access and capture the service users experiences of treatment, which will mitigate the possibility of epistemic injustice.

In light of these shortcomings in traditional evidence review, the

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project will develop an alternative methodology — Interdisciplinary Systematic Review (ISR), designed to integrate mechanistic evidence from diverse disciplines with conventional efficacy research. The aim is to provide a deeper understanding of whether an intervention works by exploring how it brings about this effect. Additionally, in expanding the types of evidence eligible for review, ISR intends to address the ethical issues posed by restricting the evidence base.

In developing ISR, the project will conduct an extensive review of the effectiveness of face masks and mask mandates in controlling respiratory infections. Building on an earlier review, this case study will draw on a variety of study designs from across a range of disciplines such as: physics and engineering (masks are physical barriers with physical, chemical and electrostatic properties), biomedical sciences (the interventions target particular pathogens with particular patterns of spread), psychology (the impact of mask policies and mandates will vary depending on adherence to those mandates and policies), and law and social policy (law and policy are used to prescribe and enforce mask mandates).

Previous systematic reviews on masks have yielded misleading findings, largely due to methodological limitations in the current system of evidence review. For instance, certain reviews have concluded that there is only moderate or poor evidence for masking as a result of downgrading studies for not blinding participants, which is unfeasible in the case of masking. In contrast, a preliminary review of multi-disciplinary evidence for masking suggested that masking mandates had been effective during the pandemic. In addition to exploring whether ISR resolves the ethical and epistemic problems posed by orthodox systematic reviews, the case study will allow ISR to be distinguished from other existing types of review which draw on mechanistic evidence such as realist and

THE REASONER 19(2) 2005 http://doi.org/10.54103/1757-0522/2025/2

narrative reviews.

In addition to delivering formal ISR guidelines, checklists and toolkits, the project will have an extensive dissemination strategy to engage with policymakers, regulatory bodies and service user organisations via relationship building and a series of workshops and training courses.

The project team consists of Jon Williamson (Principal Investigator); Trish Greenhalgh and Rebecca Helm (Co-Investigators); Luana Poliseli and Sahanika Ratnayake (Research Associates). Please get in touch if you would like to hear more or collaborate: sahanika.ratnayake@machester.ac.uk

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