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Evidence-based research

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The primary objective of establishing this special series within *Systematic Reviews* was to demonstrate the significance of systematic reviews in the justification and design of new studies, as well as in contextualizing new findings within existing evidence, a concept known as evidence-based research (EBR). Hence, the title of the series was designated as "The Role of Systematic Reviews in Evidence-Based Research." From 2022 to 2024, thirteen studies were published in the series, encompassing a broad spectrum of EBR and systematic reviews interests.

Some of these articles delved into methods of enhancing systematic reviews. Within all evidence syntheses, the process of study selection often demands substantial resources. Waffenschmidt and colleagues conducted a study employing a text-mining approach, comparing various tools such as Rayyan and EPPI Reviewer [1]. However, this method did not demonstrate superiority over human screening. Interestingly, screening conducted by a single individual was observed to overlook relevant reports, yet their exclusion did not alter the conclusions of the systematic reviews (SRs).

Mayo-Wilson and colleagues advocated for conducting separate reviews of benefits and harms, suggesting that investigating harms typically necessitates distinct methodological approaches to encompass all pertinent data [2]. In doing so, systematic reviews on harms could be

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broader and encompass the same intervention (e.g. drug) for different health problems.

Improving the conduct of SRs is crucial, as is the dissemination of their findings. A bibliographic investigation by Helmer and colleagues revealed that plain language summaries, available in multiple languages, of Cochrane Public Health reviews served as a primary means of dissemination [3]. However, there is room for enhancement in the planning (and reporting) of multiple dissemination strategies where stakeholders are involved in the planning phase.

Ensuring trustworthiness in systematic reviews entails various measures, including the registration and publication of protocols. A study by van der Braak and colleagues evaluated the frequency of protocol registration, revealing that only 38% of systematic reviews adhered to this practice [4]. Another study indicated positive attitudes towards protocol registration among authors and journal editors, though the response rate was low [5].

Further, Puljak and Lund emphasize that the term redundant SR is ill-defined [6]. This is somewhat surprising given the importance of this topic. It is also important to distinguish between redundancy and replication, while the latter can be either intended or unintended. Kugler and colleagues present three case studies of unintended replication between academia and health authorities in Germany [7].

Utilizing prior evidence to guide future research endeavours poses challenges. The article by Lund and colleagues underscores the absence of international consensus on the methodologies employed in research prioritization processes [8]. This issue warrants a clear directive, particularly for funders and governmental bodies. Journal editors, who also play a role in promoting EBR, were scrutinized. An analysis of journals in physiotherapy revealed that authors were not consistently



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required to justify their trials by referencing systematic reviews, with some exceptions noted in certain journals within the Lancet group [9]. Such an approach could potentially mitigate redundant research efforts, which can occur at both primary and secondary research levels.

Meta-research, or research on research, serves to scrutinize research norms, practices, and cultures, with the aim of intervening and enhancing research itself. The emergence of evidence-based research (EBR) stems from several meta-research studies highlighting the redundancy of publications on similar topics. A scoping review [10] identified 69 meta-research studies evaluating the presence of redundancy and the use of systematic reviews to justify and design new studies and to interpret new results. The majority indicated redundancy or lack of use of systematic reviews to justify and design new studies. However, mostly randomized controlled trials were evaluated while other research topics like epidemiology, diagnosis, and health services and systems were rarely evaluated. Most of the studies have evaluated across health domains, but studies within circulation, breathing, and musculoskeletal domains were evaluated more than other health domains.

In 1996, Savulescu, Chalmers, and Blunt questioned whether research ethics committees (RECs) were acting unethically due to their failure to evaluate whether new proposals were scientifically justified [11]. Kolstoe and co-authors [12] developed a way to assist REC in their attempt to evaluate if a new study was justified or not. It is thought-provoking that such a basic study still is needed 27 years later.

Clearly, systematic reviews are crucial for an EBR approach, but two key elements are necessary prerequisites for researchers to be able to justify a new study. These are better and guicker production, updating, and dissemination of systematic reviews and good quality in all phases of the process. Mahmic-Kaknjo and co-authors [13] identified the most promising areas and methods to prepare systematic reviews and concluded that data extraction was the most promising area for a more efficient production of systematic reviews. A more focused examination assessing the utilization of systematic reviews in contextualizing new results within existing evidence revealed that only 31% of studies were engaging in this practice [14]. Furthermore, the evaluation indicated significant variability, underscoring the need for improvement.

The special series has underscored the pressing need for a platform to publish and discuss issues pertinent to EBR, systematic reviews, and, more fundamentally, systematicity and transparency throughout all phases of the research process. While the focus thus far has primarily been on health research, emerging developments suggest that the principles of systematicity and transparency are equally essential across diverse scientific domains, including social science, humanities, and natural science.

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