OP26 Artificial Intelligence For Literature Screening And Selection: Does The Evidence Support Its Use In Systematic Literature Reviews?

Dominika Rekowska, Sera Sahbaz Gulser, Nita Santpurkar, Grace E. Fox, Shayan Ali, Nick Halfpenny and Petra Nass (PetraNass@openhealthgroup.com)

Introduction: The past decade has seen an exponential increase in peer-reviewed clinical research literature. Consequently, preparing and updating systematic literature reviews (SLRs) is more resource intensive and costly. Artificial intelligence (AI) could potentially accelerate SLR preparation. This study presents a review of evidence evaluating the accuracy of AI methods in SLR preparation and results of a case study using DistillerSR's AI functionality.

Methods: The review was based on a search of MEDLINE, Embase, and Embase Preprints databases using title/abstract keywords and subject heading synonyms for AI, machine learning, natural language processing (NLP), and publication screening and selection. The protocol is published on PROSPERO (CRD42023452391). To supplement this review, we conducted a case study with DistillerSR's AI tools. We applied the AI classifiers, which use NLP to learn patterns from multiple SLRs across several indications, which encompassed over 15,000 references' titles and abstracts. We then compared those patterns with the human responses to build an AI model that can be applied to other references.

Results: The search identified 2,209 records. After deduplication, the titles/abstracts of 2,200 records were screened; of these, 79 full-text records were assessed. A total of 42 records met the eligibility criteria for inclusion. The majority were case studies. The most frequently reported tools were DistillerSR AI (n=9), Abstrackr (n=6), ASReview (n=2), and LiveSTART (n=2). The evidence showed efficiency gains, but accuracy varied across studies and AI tools. Results of the case study using DistillerSR's AI tools indicated efficiency gains with adequate accuracy but with variability across different SLRs. Inclusion and exclusion of articles were consistent with the human decisions.

Conclusions: The findings of our review and case study indicated that AI can be used reliably in the screening of articles for SLRs and could improve efficiency. However, the evidence is still evolving, and additional studies are needed. There is a need for clear guidelines on the role of AI in study screening and selection for health technology assessments SLRs and submissions.

OP27 Artificial Intelligence Use In Health Technology Assessment In Low- And Middle-Income Countries

Maíra Catharina Ramos (mairacramos@gmail.com), Helena Eri Shimizu and Ivan Ricardo Zimmermann

Introduction: Health technology assessment (HTA), by investigating clinical, economic, and social consequences of technologies in a country, enhances health system equity and sustainability. In low- and middle-income countries (LMICs), economic constraints and inadequate access to specialized human resources present challenges. Therefore, strategies to optimize resource allocation in the health sector are necessary.

Methods: A literature review was carried out, with studies that directly identified barriers or facilitators for the use of artificial intelligence (AI) in HTA being considered eligible. The texts were analyzed from the perspective of LMIC. The searches were carried out on 8 August 2023 using the following databases: MEDLINE via PubMed, Web of Science, and Google Scholar. The selection was performed in two stages: (i) screening by title and abstract and (ii) evaluation of the eligibility criteria in full text.

Results: After conducting the search, five studies were selected for narrative synthesis. Evidence of the potential benefits of using AI in HTA in low- and middle-income countries includes rationalization of resources; reduction of the burden on health systems and minimization of human workload; efficiency in data analysis, including clinical data; prediction of economic impact; and support for managerial decision-making. However, important challenges were also raised, such as the deficiency of local infrastructure; the training and education of professionals; the lack of ethical regulation; and the organizational and political considerations of these countries.

Conclusions: There are few studies in the literature that provide scientific support on the use of AI in HTA decision-making in LMIC. The evidence points to increasing the efficiency and rationality of resources, enhancing the results arising from HTA. With this, it is expected to expand access to health technologies and enable more sustainable health systems.

OP28 Digi-HTA: The Assessment Method For Digital Health Technologies In Finland

Jari Haverinen (jari.haverinen@pohde.fi), Petra Falkenbach, Miia Turpeinen, Juha Röning and Jarmo Reponen

Introduction: The ever-increasing number of new and innovative digital health technologies (DHTs) also sets new demands on health