Rapid Review Report Methodology Protocol

Background:

Rapid reports are streamlined approaches to synthesise evidence in shorter timeframes for the purpose of informing an overview to a reader as a '*knowledge-transfer*' method. Often, rapid review reports are followed up by an evidence synthesis using systematic reviews and/or meta-analysis. Whilst there has been a proliferation of rapid review publications, a dearth of literature on rapid review methodology is available. Therefore, it is vital to deter the purpose of the publication and that it remains aligned to the research question. Similarly, the "*knowledge to action"* approach could be provided in an informative manner to further research using a step-by-step approach by way of a rapid review in comparison to any other review such as a literature review. This approach has been demonstrated for pandemic research which has had, both advantages and disadvantages to information gathering, synthesising and their publication. The rapid review designed was based on a systematic method aligned with the KTA (Knowledge to action) program. The difference between rapid reviews and systematic reviews were vital when this rapid review methodology was developed.

	Rapid review	**Systematic review**
Time frames	< 6 weeks	6 months to 2 years
Question	Specified a priori reported with PICOS	Focused clinical question (s) reported with PICOS
Screening	Limited with an explicit strategy for searches	Comprehensive sources searched and explicit strategies
Appraisal	Rigorous critical appraisal	Rigorous critical appraisal often with multiple analyses
Synthesis	Descriptive summary often with categorisation of the information	Qualitative summary +/- meta-analysis using various methods such as Bayesian or the Monte-Carlo-Simulation.
Inferences	Limited causation interpretation of the findings	Evidence-based
Limits applied	Yes	No
Quality appraisal	Yes; One reviewer and One verifier. There is an independent reviewer prior to the final manuscript production and submission.	Yes; NOSA or AMSTAR or Cochrane quality assessment tool coupled with at least 2 independent reviewer. At the end of the analysis, a blinded and independent reviewer prior to the final manuscript production.

This protocol has not been registered in PROSPERO although, we aim to publish the systematic review protocol that will be conducted following the publication of the rapid review.

Purpose:

Currently, there is limited research conducted within patients with a physical and mental health. As a result, Artificial Intelligence (AI) in particular could support patients who demonstrate a *disease sequalae,* where a primary and secondary condition impacts the patient. Often, disease sequalae is identified at later stages, thus, impacting patient's quality of life. Over the last few decades, clinicians and researchers have attempted to improve diagnosis and treatment interventions for patients who demonstrate a disease sequalae. Furthermore, some of these patients, if remained undiagnosed, would lead to having multimorbid conditions. AI applications however are mostly developed to support a primary condition, although, patients who demonstrate a disease sequalae and/or multimorbidity could benefit with tools that are able to provide multifaceted support. This is particularly useful for women's health, that goes beyond the remit of obstetrics and gynaecology, as well. However, it is beneficial to focus on a few key physical conditions from a gynaecology and obstetrics perspective and mental health to evaluate key AI applications that have demonstrated evidence of useability within clinical care.

Method:

Research Questions:

- Identify and report AI application that are used to determine disease sequalae between common gynaecological and mental health conditions
- Identify and report AI application that are used to determine disease sequalae between common obstetric and mental health conditions
- Identify and report the fundamental methods of AI applications used within gynaecology, mental health and obstetrics

Hypothesis:

AI applications show promise in stand-alone primary gynaecology, obstetrics and mental health conditions, although there are significant limitations from a quality and generalisability perspective. Similarly, AI applications for *disease sequalae* are yet to be designed and developed. Therefore, demonstrating current applications could be beneficial to aid in conducting further research to develop more comprehensive and high quality AI applications that could be either uniformly used and/or personalised to improve patient care for women.

Eligibility/Data collection

A search was conducted to identify relevant articles using Science Direct. Two reviews independently screened the literature gathered and reported using a descriptive

analysis. Pairs of reviewers screened the literature search results independently for discrepancies. Key terms used were *Artificial intelligence applications, Machine learning, Deep learning, mental health, gynaecology, obstetrics, women's health, digital health, multimorbidity and disease sequalae.* A snowball method was then applied to each of the MeSH terms to ensure a thorough data collection was completed. This data was independently reviewed and assessed for its integrity, alignment to the research questions and eligibility criteria prior to the analysis by an independent reviewer.

Data analysis:

- Narrative synthesis provided will demonstrate an overview of the evidence identified, critically appraised and chronologically presented with the aim of providing readers from **multidisciplinary clinical and non-clinical backgrounds** with an interest in the use of AI in women's physical and mental health.

- Most clinical researchers use PCIO as part of reporting guidelines although, this rapid review report has been extension to critically appraise the evidence identified to better discuss prevalence of any AI applications used within disease sequalae and primary clinical conditions.

Outcomes:

1. Knowledge and practice gap of AI application used in gynaecology, obstetrics and mental health
2. Healthcare professional reported outcomes AI applications used
3. Generalisability of the AI applications identified and reported

References

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