

Peer Review File

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Reviewer A

Comment 1 - The method study needs extensive revision for clarity. If the study is designed to provide evidence, then quantitative research methods are required, which are not provided. Evaluations of the efficacy of AI with qualitative SWOT alone would benefit from measurable outcomes such as metrics in clinical care available from multiple global studies. Therefore, the article needs more foundation on tangible AI positive points to augment clinical support at scale.

Reply 1 – Thanks for your feedback. Much appreciated. We have made several revisions to the manuscript including title change of the manuscript – “**Artificial Intelligence, Chatbots and Chat GPT in Healthcare – Historical Overview, Evolution, Current Application, and Change Management Approach to Increase Adoption**”. We have made revisions and now included several studies to show how AI can be utilized in clinical decision making. Reviewer will find these changes throughout the manuscript including page 5-6.

Comment 2 - Adopting AI does require a cultural shift, and the paper may benefit from terminologies on transparency, explanans and interpretation to support the system’s trustworthiness.

Reply 2 – Thanks for your feedback. We have added relevant information to the paper. Please see page 21-22.

Comment 3 - An alternative debate to Kotter’s 8-Stage Change process is using a standard in ISO 15189:2022 to evaluate and system manage the change. Also, it is unclear whether Kotter’s 8-Stage change is “evidence-based” or change control. The term “evidence” suggests that there are assurances and training sets with the ML or that the NAS has a system for backpropagation to recalibrate nodes and that outcomes are measured.

Reply 3 - Thanks for your feedback. We have made appropriate revisions to the manuscript to reflect change control. Please note that we have focused on Kotter’s 8 step change process to promote adoption of AI in healthcare settings. While this approach has been utilized in business settings, there is still a scarcity of literature where Kotter’s has been utilized in healthcare settings. We have added literature to justify use of Kotter’s approach under theoretical framework with recommendations. Please see page 23.

Comment 4 - The paper appears at odds with a review on Chat to that of generic applications of AI to that of a system evaluation in Kotter’s 8-change process. The

article does not reference patient safety or national aims to govern AI for the public's well-being from medical errors. This is a challenging debate and an acceptance for clinicians but a moral dilemma for society. More examples of referenced AI usage to augment and evidence clinical support to predict health and precision care may be appropriate.

Reply 4 – We have added content on AI usage for clinical support. Also, content on medical error, faulty data sets, and has been added to different sections of the manuscript. Please see page number 26-27.

Comment 5 - Nevertheless, positive AI cultures are essential for new technologies, and Kotter's 8-Stage change process would be a welcome means for AI integration in harmonious settings, providing all parties are on the same page in collaboration. In contrast, ISO 15189:2022, an international standard approach, implements AI at a personalized health point of need when adapted, in which the reviewer has multiple papers for national evidence-based change control. For a balanced review, the choice of journal is also essential.

Reply 5 – Thanks for your comments. For the purpose of this study/manuscript, we have included Kotter's 8-step change process to enhance AI integration in healthcare settings. We are glad to learn that reviewer is an expert in ISO 15189:2022 and would like to congratulate the reviewer on their achievements, however, please note that scope of the manuscript did not include ISO 15189:2022. Please note we have added several revisions based on the comments provided by the reviewer. We submitted this paper to the section which has a strict word limit. Unfortunately, we do not have the space to add a complete discussion of this without going much more over the word limit.

Comment 6 - The strengths and opportunities make some valid points and should be followed up on the Human Phenotype Project and the benefits of multi-omics in detail to personalize well-being that predicts health and precision care at scale. However, terms like "evidence suggests that AI enabled tools" do not reference the evidence. Terms like "used appropriately" require clarification.

Reply 6 – We have included additional information on Human Phenotype Project and benefits of multi-omics. Further sentences have been rephrased/editors to incorporate reviewer's feedback. Please see page number 16-17.

Comment 7 - In weakness and threats, the term "Even though the field of AI is growing and will continue to expand, human surveillance is extremely important" is ambiguous. Is this a weakness or a threat, and do we have evidence? What is the reference here? Can future QI not evaluate well-being and welfare by accumulating big data on the social determinants?

Reply 7 – Thanks for your feedback. We have now added reference and new statements

to support the claim. Please note that we are not debating future QI not being able to evaluate well-being and welfare by using big data. This manuscript is part of five paper series and this concept is out of scope for the current work submitted to JMAI.

Comment 8 - Expansion on the securities of cloud-based AI systems, application of ISO 27001, and cybersecurity require detail, while the purpose of maturing AI systems in US legislation requires review. The weaknesses and threats concerning biases provide no counterarguments on analytic bias controls on assured systems with appropriate training data sets. The discussion provides no reference in the title for GPTChat or Chat bot. I agree strongly though with the discussion on adopting and implementing tools but disagree that this will be a smooth change and therefore looked for counterarguments. While Kotter's 8 Step change is an option, the authors opt for a theory for change control over international standards for conformance or System Engineering Initiatives for Patient Safety, which system works the phenotype and benefits from FDA or State oversight. Collaboration and cooperation for the organization in aims and policies are required. Information that the US operate in data silos in comparison to a restructured UK system under the Health and Care Bill would set precedence for change.

Reply 8 – We thank reviewer 1 for their feedback. We have added new content under Discussion section. Please note that we appreciate your comments. As noted above, for the purpose of this paper [also described in objectives of the study] we have focused on Kotter's 8 step change process to promote adoption of AI in healthcare settings. While this approach has been utilized in business settings, there is still a scarcity of literature where Kotter's has been utilized in healthcare settings. We have added literature to justify use of Kotter's approach under theoretical framework with recommendations. Our manuscript is aligned with our research objectives. We did not set out to compare UK system with US healthcare system. This is not the focus of the current manuscript [under strict word limit]. A comparison to other healthcare systems could certainly be accomplished in future manuscripts.

Comment 9 - The paper should debate that AI should gain development in operations for patient safety, in that the 3rd largest cause of fatality in the US is malpractice. Therefore, a debate on mitigating adversity may be practical to support clinician and public perceptions of AI integration. In addition, approximately 1:13 persons in the US possess an inborn error of metabolism and the means to predict health with genomics requires Variant Call Formats that use tensor flow. In addition, a bigger picture on PGx and RxNorm would further support a patient safety argument for AI with the stratification of patients amongst control groups, only feasible by AI. A greater use of systematic reviews would better support the argument for these AI systems. The author provides a concern to the statement, "With more than a decade of experience in academics, research, and healthcare industry, authors of this manuscript have provided recommendations for healthcare practitioners and leaders who are interested in implementing these tools and employing AI at large within their healthcare

organizations” . As a research scientist and quality system specialist with AI analytics published on culture, I would debate the healthcare benefits of AI come from robust training, assurance, risk and system management that augment clinical support on suitably assessed AI. There are >20 AI/IT/ML/NAS standards under development in ISO, and these would reduce some of the challenges the authors and adopters perceive. Indeed, the paper generally appears distant from patient safety adversity from malpractice and benefits from standard approaches to assure the AI system. In the UK, Dr Ben Goldacre led a review for the government on health data with some good points on why AI is essential and why it should, for the most part, remain in research. Evidence-based research should also be brought into the system as a consideration. The article needs to work on how to justify that the system proposed is appropriate because it needs to address patient safety appropriately. To assume that one mechanism will make that change is unrealistic and multiple ISO standards have been proposed. As a peer reviewer, I recommend providing a more balanced read to fully inform of the benefits of AI across predictive health and precision care and to decide if we are discussing GPTChat or AI in general. The article requires restructuring and a greater literature review. Indeed, the papers would benefit from a references section built on systematic reviews. Of note is that the discussion section contains the body of the work in Kotter’s 8 Step change. Therefore, the paper fails to adequately structure, assess, result and evaluate those assessments and recommendations for a suitable discussion on Kotter’s 8-Step change. Considerable amendments are required, and if so delivered, I would be happy to review and support publishing as there are significant points relative to the interest of clinical practice which are of great interest to the public. Indeed, the authors should be commended on proposing a means in going forward in the US, but should contrast the developments in the UK with Integrated Care Systems and the Turing Institute.

Response 9: Through revisions we have addressed several comments made by reviewer 1. For instance, we have added studies justifying use of Kotter’s approach, emphasized need for training, education, security, ethical implications, and governance model for implementation AI in healthcare. Furthermore, we have added clinical studies where AI has been integrated. We have also expanded on SWOT, discussions, Human Phenotype Project, challenges faced, and Omics based test. We have also tried to stay in the word limit as best we could [while addressing the comments]. Please note that drawing comparison and contrast between US and UK was not the purpose of the study. We had three objectives and in our study, we clearly tried to answer/work on these objectives. This paper is one of the five paper series that we intend to work on in next few years. We believe that feedback provided by reviewer 1 will be of great value as we conduct future studies in the field of AI and healthcare.

Reviewer B

Comment 1 - There are a few areas of improvement worth considering for this manuscript. It appears that the manuscript covers a wide range of topics, but there might be room for enhancing the depth and expertise in each area, which could help improve

its overall cohesion.

Reply 1 – Thanks for your comments. We have significantly revised the manuscript and additional details have been added to add extra depth to different sections of the manuscript. Please see following pages for more information page 5-6, page 9, page 16-17, page 21-22.

Comment 2 - I kindly suggest that the authors take some time to review guidelines on writing academic manuscripts, particularly regarding the appropriate use of citations. It may be beneficial to include citations for several assertions made in the manuscript.

Reply 2 – Thanks for your comment. We have added citations [in-text and reference] to support our thoughts/comments. There are a total of 62 references now (34 earlier in the draft submitted earlier).

Comment 3 - Additionally, I recommend exploring guidelines for review articles to gain a better understanding of the framework and rigor typically expected in this type of manuscript. Although the manuscript includes 34 citations, it attempts to address one of the most significant and rapidly evolving technologies of the past 5+ years across various disciplines, including healthcare. It's worth noting that a quick search using the term "healthcare technology" in PubMed alone yields 141,697 results, which emphasizes the importance of ensuring the manuscript's alignment with its title and objectives.

Reply 3 – Thanks for your comment. We have added literature, added new articles throughout the manuscript, and also updated search words for the manuscript. There are a total of 62 references now (34 earlier in the draft submitted earlier).

Comment 4 - Furthermore, it might be valuable for the authors to delve into the field of clinical informatics and investigate relevant professional societies. This exploration can provide insights into the scope and diversity of professionals and researchers working in this field, which could add depth to the manuscript's content.

Reply 4 – Thanks for your feedback. We have now added content on this topic reflecting on the role on these professional societies. Please see page 20 and page 22.

Comment 5 - Lastly, the SWOT analysis and Kotter's eight-stage recommendations, while certainly interesting, could benefit from additional depth and rigor to make them more substantial.

Reply 5 – Thanks for your comments. We have added new information to the section.