

Response to Comments from Reviewer 1

General Comments:

Fluent and well organized manuscript, easy to read. Interesting and recent topic. The references are appropriate and recent. It can be accepted for publication.

Scientific Quality: Grade C (Good)

Language Quality: Grade B (Minor language polishing)

Conclusion: Accept (General priority)

Response: Thank you for your comments. We further revised the manuscript based on the comments by another reviewer and the editor.

Response to Comments from Reviewer 2

General Comments:

The work is somehow new but several limitations from the English to the technical hinder to grasp the main point of the work.

Scientific Quality: Grade C (Good)

Language Quality: Grade B (Minor language polishing)

Conclusion: Major revision

Specific Comments to Authors:

Point 1: In my opinion, the abstract is too cumbersome and is hard to catch the key point. The keywords need to be more detailed.

Response 1: Thank you for your helpful advice. According to your comments, we simplified the abstract and added two keywords such that the keywords are more detailed. The revised abstract and keywords are as follows.

“Abstract

Artificial intelligence-based technologies are gradually being applied to psychiatric research and practice. This paper reviews the primary literature concerning artificial intelligence-assisted psychosis risk screening in adolescents. In terms of the practice of psychosis risk screening, the application of two artificial intelligence-assisted screening methods, chatbot and large-scale social media data analysis, is summarized in detail. Regarding the challenges of psychiatric risk screening, ethical issues constitute the first challenge of psychiatric risk screening through artificial intelligence, which must comply with the four biomedical ethical principles of respect for autonomy, nonmaleficence, beneficence and impartiality such that the development of artificial intelligence can meet the moral and ethical requirements of human beings. By reviewing the pertinent literature concerning current artificial intelligence-assisted adolescent psychosis risk screens, we propose that assuming they meet ethical requirements, there are three directions worth considering in the future development of artificial intelligence-assisted psychosis risk screening in adolescents as follows: nonperceptual real-time artificial intelligence-assisted screening, further reducing the cost of artificial intelligence-assisted screening, and improving the ease of use of artificial intelligence-assisted screening techniques and tools.

Key words: *Psychosis risk; Adolescents; Artificial intelligence; Big data; Social media; Medical*

ethics; Chatbot; Machine learning”

Point 2: The introduction must be an extended version of the abstract. The authors must elaborate on the points highlighted on the abstract and give supportive ideas and references.

Response 2: We revised the introduction section, and the revised introduction section includes the current status of adolescent psychosis, influencing factors, main benefits of artificial intelligence-assisted adolescent psychosis risk screening, existing challenges and contributions. The revised introduction section elaborates on the points highlighted in the abstract and provides supporting ideas and references.

Point 3: An introduction should clearly highlight the motivation, problem statement, the objective of the paper, gap in the existing research and the novelty of the conducted research.

Response 3: Thank you for the valuable suggestion. We revised the introduction section. The revised introduction section explains that the current status of adolescent psychosis is the motivation for the study, and the “Main benefits of artificial intelligence-assisted adolescent psychosis risk screening” is the statement of the question. Additionally, the sections “Existing challenges” and “Contribution” discuss the gaps in existing research and the novelty of the research conducted. The revised introduction section contains the motivation, problem statement, objectives of the paper, gaps in existing research, and novelty of the research conducted.

Point 4: The contributions presented in this paper are not sufficient for possible publication in this journal. I highly suggest authors to clearly define the contributions.

Response 4: We appreciate your thoughtful question, and we added our contributions to the last paragraph of the introduction.

Contribution

Clearly, there is a strong necessity and feasibility to focus on and apply artificial intelligence-assisted psychiatric risk screening in adolescents. However, there is a paucity of research concerning artificial intelligence-assisted psychiatric screening and a dearth of narrative literature reviews focusing on this important population characteristic of adolescents. Therefore,

this paper reviews the main literature concerning artificial intelligence-assisted adolescent psychiatric risk screening to clarify the current state of development and recent explorations of this important topic in terms of practice and challenges with the aim to contribute to a more effective use of artificial intelligence methods for adolescent psychiatric risk screening in the future on a global scale.

Point 5: The literature has to be strongly updated with some relevant and recent papers focused on the fields dealt with the manuscript.

Response 5: Thank you for your comments. We used RCA to improve the highlights of the latest cutting-edge research results and the content of the manuscript. Furthermore, we studied the references provided by the reviewers and cited them appropriately. After the revision, we counted the references, and there are 89 references in this paper, including eight references published in 2022 and 35 references published in the last three years. We believe that we covered the most cutting-edge directly relevant literature reasonably well.

Point 6: The writing of the manuscript. There are a many incomplete sentences or sentences without subjects.

Response 6: Thank you for your helpful advice. We used the Premium Translation service offered by American Journal Experts (AJE) to modify the revised version of the paper to ensure that all grammatical, syntactical, formatting and other related errors are resolved so that the revised manuscript will meet the publication requirements (Grade A). AJE is the professional English language editing company that Baishideng Publishing Group Inc. recommends.



Editing Certificate

This document certifies that the manuscript

Artificial intelligence-assisted psychosis risk screening in adolescents: practices and challenges

prepared by the authors

Xiaojie Cao, Xinqiao Liu

was edited for proper English language, grammar, punctuation, spelling, and overall style by one or more of the highly qualified native English speaking editors at AJE.

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Point 7: Many details are missing and others unclear.

Response 7: Thank you for your advice. We used the Premium Translation service offered by American Journal Experts (AJE) to avoid missing and unclear language.

Point 8: The conclusions in this manuscript are primitive. Write your conclusions.

Response 8: We appreciate your suggestion. We clearly listed the conclusions in the conclusion section, and we further refined the conclusion section.

“CONCLUSION

While focusing on the psychosis risk faced by adolescents worldwide, this paper reviews the influencing factors of adolescent psychosis risk, which can be divided into the following three main categories: national and social factors, family factors, and individual factors. This paper summarizes the benefits of artificial intelligence-assisted psychosis risk screening in adolescents, which are mainly manifested in improving the speed and timeliness of screening for those who are already sick and those with a potential risk of disease, promptly correcting the risky behavior of patients to prevent the occurrence and further aggravation of symptoms, and improving the

accuracy and objectivity of screenings and the screening coverage. The application of chatbots and large-scale social media data analysis in psychosis risk screening is discussed in detail. The advantage of chatbots in psychosis risk screening is that they can provide services to those with psychosis who have limited resources or accessibility problems, although privacy concerns and other ethical issues may exist. The accuracy of large-scale social media data analysis is gradually improving, and more technologies based on multimodal perception, understanding, and natural dialog and interactions are still needed to help comprehensively and accurately screen for psychosis risk in adolescents.

After surveying the current literature concerning artificial intelligence-assisted adolescent psychosis risk screening, we found that although artificial intelligence has been gradually applied to early psychosis risk screening, it has rarely been applied in studies that directly use adolescents as subjects. In view of the prevalence and harm of psychosis among adolescents worldwide, the timely screening of adolescent psychosis risks with artificial intelligence technology has considerable prospects for development. Furthermore, scientific progress must follow relevant ethical principles, not ignore vulnerable groups of adolescents, and ensure that artificial intelligence-assisted psychosis risk screening is conducted in an ethically acceptable manner, thereby minimizing potential adverse effects.

Based on the current status of psychiatric artificial intelligence research and practice, we propose that ethical issues constitute the main challenge of artificial intelligence-assisted psychosis risk screening in adolescents. The four biomedical ethics principles (respect for autonomy, nonmaleficence, beneficence, and justice) should be strictly obeyed. In addition to ethical issues, artificial intelligence-assisted psychosis risk screening in adolescents faces problems, such as small sample sizes, unoptimized prediction models, compliance, and research bias.

We propose that assuming compliance with ethical requirements, three main directions can be considered for artificial intelligence-assisted psychosis risk screening in adolescents in the future. First, we should develop nonperceptual real-time artificial intelligence screening with the help of technological advancements, such as 5G technology and the Internet of Things, to allow both the collection of individual emotional and health data and the prediction of individuals' mental health status in real time. Second, we should further reduce the cost of artificial intelligence-assisted screening. Psychosis is an important part of human health, and both poor and rich people should enjoy the benefits of technological progress. The long-term goal of artificial intelligence-assisted psychosis risk screening is that users should not pay high prices for the screening. Third, we should improve the ease of use of artificial intelligence-assisted screening techniques and tools such that regardless of an individual's level of knowledge, he or she can easily use artificial intelligence tools to screen for a psychosis risk."

Point 9: The manuscript is hard to be understood and words should be improved.

Response 9: Thank you for your valuable suggestion. We used the Premium Translation service offered by American Journal Experts (AJE) to supplement and revise this manuscript to avoid ambiguity.

Point 10: Additional References: The following articles could be useful: - A diagnostic testing for people with appendicitis using machine learning techniques. <https://doi.org/10.1007/s11042-022-11939-8> - Has the Future Started? The Current Growth of Artificial Intelligence, Machine Learning, and Deep Learning. <https://doi.org/10.52866/ijcsm.2022.01.01.013>

Response 10: We are very grateful for the references recommended by the reviewer. We read the above references and found them very valuable for improving this manuscript. We cited the parts of the two references that are relevant to this manuscript.

“(3) Artificial intelligence mitigates the scarcity of medical resources^[错误,未找到引用源。] and increases the coverage of screenings. Additionally, artificial intelligence can process massive amounts of data and use these data to improve generalization^[错误,未找到引用源。] while playing a pivotal role in identifying and detecting heterogeneity in schizophrenia and other mental illnesses^[错误,未找到引用源。] and can help doctors make the right decisions for subsequent diagnostic treatment^[0].”

“In addition to ethical issues, artificial intelligence-assisted psychosis risk screening in adolescents faces several other issues, including (1) small sample sizes: the use of machine learning to establish prediction models with high accuracy and strong generalization ability requires large samples^[错误,未找到引用源。], but many studies have mentioned the problem of too few samples, resulting in overfitting, which may lead to model errors and low accuracy^[错误,未找到引用源。].”

References:

[45] Mijwil MM, Aggarwal K. A diagnostic testing for people with appendicitis using machine learning techniques. *Multimedia Tools and Applications* 2022; **81**: 7011-7023 [PMID: 35095329 DOI: 10.1007/s11042-022-11939-8]

[86] Aggarwal K, Mijwil MM, Al-Mistarehi AH, Alomari S, Gök M, Alaabdin AMZ, Abdulrhman SH. Has the Future Started? The Current Growth of Artificial Intelligence, Machine Learning, and Deep Learning. *Iraqi Journal for Computer Science and Mathematics* 2022; **3**: 115-123[DOI: 10.52866/ijcsm.2022.01.01.013]

Response to the science editor

The manuscript has been peer-reviewed, and it's ready for the first decision.

Language Quality: Grade B (Minor language polishing)

Scientific Quality: Grade C (Good)

Response: Thank you very much for your efforts.

Response to the editor-in-chief

General Comments:

I have reviewed the Peer-Review Report, the full text of the manuscript, and the relevant ethics documents, all of which have met the basic publishing requirements of the World Journal of Psychiatry, and the manuscript is conditionally accepted.

Specific Comments to Authors:

Point 1: Before final acceptance, the author(s) must add a table/figure to the manuscript. There are no restrictions on the figures (color, B/W).

Response 1: We are grateful for your constructive suggestion, and we added a table to the manuscript. Table 1 is as follows.

Table 1 Connotations of ethical principles and issues faced by adolescents

<i>Ethical principles</i>	<i>Connotations</i>	<i>Issues faced by adolescents</i>
<i>Respect for autonomy</i>	<i>Ensuring informed consent and informed choice, ensuring that humans have complete and effective autonomy, and requiring that the operation of any artificial intelligence be supervised by humans</i>	<i>Safety and trustworthiness of screening methods; full approval from adolescents and parents; willingness to use artificial intelligence for screening!</i> ^[错误!未找到引用源。]
<i>Nonmaleficence</i>	<i>Privacy, security and “capability warnings”^[错误!未找到引用源。]; artificial intelligence technology must be able to strongly resist malicious use, including avoiding harm to the natural environment and all living things</i>	<i>Privacy leakage and data abuse; difficulties in oversight and accountability; adverse effects and stigma with irreversible damage</i>
<i>Beneficence</i>	<i>Must be beneficial for not only the patients but also the medical cause, medical sciences and even the well-being of the entire human race</i>	<i>Screening scales need to be refined; no consensus (such as ethical evaluation acceptance of the technology) among different stakeholders!</i> ^[错误!未找到引用源。]

Justice

Everyone in society has equal rights to reasonably enjoy health resources and participate in the distribution; prosperity is promoted; and unity is maintained

Development of artificial intelligence cannot benefit all groups of young people^[错误; 未找到引用源。]; intergenerational transmission maintains inequality^[错误; 未找到引用源。]

Point 2: Before final acceptance, when revising the manuscript, the author must supplement and improve the highlights of the latest cutting-edge research results, thereby further improving the content of the manuscript. To this end, authors are advised to apply a new tool, the Reference Citation Analysis (RCA). RCA is an artificial intelligence technology-based open multidisciplinary citation analysis database. In it, upon obtaining search results from the keywords entered by the author, "Impact Index Per Article" under "Ranked by" should be selected to find the latest highlight articles, which can then be used to further improve an article under preparation/peer-review/revision. Please visit our RCA database for more information at: <https://www.referencecitationanalysis.com/>.

Response 2: We are grateful for your comments. RCA is indeed a useful tool for a literature analysis, and we found it helpful in the revision of our manuscript. We used RCA to improve the highlights of the latest cutting-edge research results and the content of the manuscript.