

Dear Editor,

Thank you very much for sending us the valuable comments of the reviewer and editorial office on our manuscript (NO.: 55980: "Effects of smartphone-based interventions and monitoring on bipolar disorder: A systematic review and meta-analysis"), which have helped us to improve the quality of our paper greatly. We have thoroughly revised our manuscript according to the reviewer and editorial office' comments and suggestions. The comments and the critiques of the reviewer and editorial office have been addressed and itemized as follows:

Responses to Reviewer 1

Comments to the Author

Thanks for recommending me as a reviewer. This study was compared the effect of smartphone-based interventions and monitoring with control methods in treating patients with bipolar disorder (BD). The study was well written overall. Also, This study is very interesting. If the author makes a few changes, the quality of the study will be higher.

Answer:

We thank the reviewer for the kind comment. Please see our point-by-point answers below.

Question 1:

1. The author explained the background of the study well in the introduction section. However, if the introductory section more specifically explains the need for'smartphone

arbitration', it can help readers understand.

Answer:

We are extremely grateful to the reviewer for pointing out this problem. We have added some content.

“Additionally, using smartphones as a tool for psychological treatment is well-accepted for most people because it is cost-effective^[9]. Use of smartphone also breaks the limitation of distance between patients and therapists, therefore it is a viable method to apply smartphones to treat someone who has difficulty in accessing health care^[10].”

Question 2:

2. Page 7, Literature search: It is necessary to specifically mention the period of the literature search.

Answer:

Thank you for this valuable feedback. We have added the specific time of literature search period. The first smartphone came out in 1993, so we define 1993 as the starting point of literature searching. The revised part is as follows:

“We searched PubMed, Embase, Clinical trials, psycINFO, Web of Science, and Cochrane Library from 1993 to August 1, 2019.”

Question 3:

3. Page 8, Data extraction If the author describes the exclusion criteria of the study in more detail, it can help the reader understand.

Answer:

We thank the reviewer for the kind comment. We have added the details as followings:

“Exclusion criteria: (1) Intervention; the intervention was not clearly defined; (2) Outcomes: specific outcomes not report; (3) Unavailability of full text; (4) Studies

investigating the feasibility and satisfaction of smartphone-based intervention were excluded.”

Question 4:

4. Did author analyze 'publication bias' in this meta-study? It is necessary to present a funnel plot. If a "funnel plot" was not presented for special reasons, the author should add this as a limitation in the 'Discussion' section.

Answer:

We thank the reviewer for the kind comment. We did not present a funnel plot for the certain reason. The reason why we did not yield a funnel plot to determine publication bias is that the number of included trials was no more than 10.

“For publication bias, it was inappropriate to make a funnel plot to determine it because the number of included trials was no more than 10^[36]. We did not have enough studies to make a meaningful funnel plot which was proposed by Egger et al^[37].”

Responses to editorial office’s comments

(1) Science editor:

1 Scientific quality: The manuscript describes a meta-analysis of the effects of smartphone-based interventions and monitoring on bipolar disorder. The topic is within the scope of the WJP. (1) Classification: Grade B; (2) Summary of the Peer-Review Report: This study was compared the effect of smartphone-based interventions and monitoring with control methods in treating patients with bipolar disorder. The study was well written overall. Also, this study is very interesting. If the author makes a few changes, the quality of the study will be higher. The questions raised by the reviewers should be answered; and (3) Format: There is 1 table and 7 figures. A total of 45

references are cited, including 17 references published in the last 3 years. There are no self-citations. 2 Language evaluation: Classification: Grade B. A language editing certificate issued by MedE was provided. 3 Academic norms and rules: The authors provided the signed Conflict-of-Interest Disclosure Form and Copyright License Agreement.

The authors need to provide the Biostatistics Review Certificate and PRISMA checklist form. No academic misconduct was found in the CrossCheck detection and Bing search.

4 Supplementary comments: This is an unsolicited manuscript. The study was supported by Anhui Natural Science Foundation; the project of human social science of Anhui province; and Grants for Scientific Research of BSKY from Anhui Medical University. The topic has not previously been published in the WJP. The corresponding author has not published articles in the BPG.

5 Issues raised: (1) I found the authors did not provide the approved grant application form(s). Please upload the approved grant application form(s) or funding agency copy of any approval document(s); (2) I found the authors did not provide the original figures. Please provide the original figure documents. Please prepare and arrange the figures using PowerPoint to ensure that all graphs or arrows or text portions can be reprocessed by the editor; (3) I found the authors did not write the “article highlight” section. Please write the “article highlights” section at the end of the main text; and (4) Please write the “Conclusion” section at the end of the main text. 6 Re-Review: Required. 7 Recommendation: Conditionally accepted.

Answer:

We appreciate for your suggestions and make sure to meet your requirements. We have provided the approved grant application form(s) and original figures. We also have added content of the “article highlights” section and the “Conclusion” section as followings:

“CONCLUSION

In summary, smartphone-based interventions are effective in reducing manic and depressive symptoms. Nevertheless, the smartphone-based monitoring systems only worked for participants with manic but not depressive symptoms. Our results contribute to the literature on smartphone-based interventions and monitoring for manic and depressive symptoms in BD patients, although much work remains to be done. This meta-analysis shows that smartphone-based intervention and monitoring have the potential to enhance the methods of treatment with its characteristics of low expenditure and highly-convenience, in addition to available medications and psychological interventions.

Article highlight

Research background

Recently, a range of studies about smartphone-based interventions and monitoring for reducing symptoms of bipolar disorder (BD) have been published. However, their efficacy on BD remains unclear.

Research motivation

The present study aimed to assess randomized controlled trials and single-group trials of smartphone-based interventions and monitoring for reducing the symptoms of BD.

Research objectives

The main objective is to update and evaluate innovative treatment suggestions for BD.

Research methods

We performed a systematic literature search on Pubmed, Embase, Clinical trials, psycINFO, Web of Science, and Cochrane Library. Randomized clinical trials (RCTs) or single-group trials in which smartphone-based interventions and monitoring were compared with control methods or baseline in patients with symptoms of BD. We synthesized data using a random-effects or a fixed-effects model by Review Manager

version 5.3 to analyze the effects of psychological interventions and monitoring delivered via smartphone on psychiatric symptoms in patients with BD. The primary outcome measures were set for mania and depression symptoms. The subgroups were created to explore which aspects of smartphone interventions are relevant to the greater or lesser efficacy of treating symptoms.

Research results

We identified 10 articles, including seven RCTs (985 participants) and three single-group trials (169 participants). Analysis of the between-group study showed that smartphone-based interventions had positive effects on reducing manic ($g = -0.19$, 95% CI: $-0.33 - -0.04$, $P = 0.01$) and depressive ($g = -0.28$, 95% CI: $-0.55 - -0.01$, $P < 0.05$) symptoms. In within-group analysis, smartphone-based interventions significantly reduced manic ($g = 0.17$, 95% CI: $0.04 - 0.30$, $P < 0.01$) and depressive ($g = 0.48$, 95% CI: $0.18 - 0.78$) symptoms compared to the baseline. Nevertheless, smartphone-based monitoring systems significantly reduced manic ($g = 0.27$, 95% CI: $0.02 - 0.51$, $P < 0.05$) but not depressive symptoms. Subgroup analysis indicated that the interventions with psychoeducation were effective in depressive ($g = -0.62$, 95% CI: $-0.81 - -0.43$, $P < 0.01$) and manic ($g = -0.24$, 95% CI: $-0.43 - -0.06$, $P = 0.01$) symptoms compared to the controlled conditions, while the interventions without psychoeducation did not ($P > 0.05$). The contacts between therapists and patients that contributed to the implementation of psychological therapy reduced depression symptoms ($g = -0.47$, 95% CI: $-0.75 - -0.18$, $P = 0.01$).

Research conclusion

Smartphone-based interventions and monitoring had a significant positive impact on depressive and manic symptoms of BD patients in between-group and within-group analysis.

Research perspective

The current meta-analysis suggests that smartphone-based interventions provide evidence of any reduction in manic and depressive symptoms. Nevertheless, smartphone-based monitoring systems are only effective for participants with manic but not depressive symptoms. The findings have implied that these digital tools can be

used as the clinically future treatments for symptoms of BD. However, future trials need to keep pace with the development of these apps and a better understanding of the numerous factors that influence outcomes of smartphone interventions for BD are also required.”

(2) Editorial office director: I have checked the comments written by the science editor.

Answer:

We appreciate for your work.

(3) Company editor-in-chief: 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, and the manuscript is conditionally accepted with major revisions. I have sent the manuscript to the author(s) for its revision according to the Peer-Review Report and the Criteria for Manuscript Revision by Authors. Before final acceptance, authors need to correct the issues raised by the editor to meet the publishing requirements.

Answer:

We appreciate for your comments.

Yours sincerely,

Xiaoming Li, PhD.