IJ Psychiatry and Behavioral Sciences
Volume 17 · Issue 3 · e136220

OPEN PEER REVIEW

Effect of Facial Emotional Feedback Through Facial Electrical Stimulation on Mood Change and Its Clinical Application in Participants with Mild Depression: A Multiple Baseline Case Study

Mohsen Nouri Yalghouzaqaji, Abbas Pourshahbaz, Shima Shakiba, Behnam Akhbari, Behrooz Dolatshahi, Sajede Rezaie

SUBMITTED	REVISED	ACCEPTED	DOI
7 Mar 2023	4 Jul 2023	18 Jul 2023	10.5812/ijpbs-136220

About this report

This open peer review (OPR) report shows the public comments made on this article during peer review, by the reviewers, the associate editor and the editor-in-chief, for every revision round, together with the authors' replies. Comments appear only with the consent of the people who wrote them. Reviewers who chose to sign their report are named; the others are shown as "Referee". Comments are edited for language only, and confidential remarks to the editors are not included.

More about open peer review: brieflands.com/knowledgebase/opr

Contents

1 **Original submission** Referee 1, Referee 2, Editor-in-Chief 2
2 **Revision 1** Referee 3, Editor-in-Chief 4
Authors' reply to reviewers 5
Reviewer and editor comments 16
3 **Revision 2** Referee 4, Referee 3, Associate Editor, Editor-in-Chief 17
Authors' reply to reviewers 18
Reviewer and editor comments 20

1 Original submission

3 comments · 13 Mar 2023 – 9 Apr 2023

Referee 1 Reviewer

MAJOR REVISION 13 Mar 2023

This is a study that aims to address the issue of what impact the bilateral electrical stimulation of the Frontalis (as inhibitory muscles of the corrugator) and zygomaticus muscles has on the emotions and mood of those who suffer from moderate depression. Over the course of 28 days, six people with moderate depression were exposed to electrical stimulation of the face once per day at one of two intervention sites, with three separate baselines of 3, 6, and 9 days at each site. The authors reported that mixed model analysis revealed significant improvements from pre-intervention to post-intervention in negative affect, mood, depression, and symbol search in individuals with Frontalis muscle stimulation, and in mood in people with zygomaticus muscle stimulation.

1. Please add a conclusion to the abstract.
2. Please rephrase the following sentence to enhance clarity:
"The interventions were introduced systematically in one condition while baseline data collection continues in the others".
3. Six patients were included in the analysis. Does the inclusion of just six patients compromise the reliability of the results? In other words, please assess the power of your study.
4. Who interviewed the patients?
5. The setting of the study has not been discussed in detail.
6. According to the authors, the participants were randomly divided into two groups. How did you assign them randomly?
7. Please explain the demographic characteristics of the included patients in the first part of the results.
8. What are the strengths of your study compared to other similar research?

Referee 2 Reviewer

MAJOR REVISION 16 Mar 2023

Thanks to the authors for considering IJPBS for their submission.
Regarding this manuscript, it should be said that it is a clinical trial study. As a result, in addition to having an ethics code, such studies should have been registered with a reliable protocol registry, such as the Iranian Clinical Trial Center (IRCT), before they began, and this registration code should be reported in the ethical considerations section. However, currently, no such code appears in the text of the manuscript, nor is such a protocol visible in IRCT. This registration code is required to continue the review. In addition, the study must be written according to the CONSORT guideline. Moreover, what was the statistical reasoning for applying mixed model analysis (what kind? linear/logistic/...) to a sample size of six?

Editor-in-Chief

MAJOR REVISION 9 Apr 2023

Thank you for submitting your manuscript for consideration for publication in the Iranian Journal of Psychiatry and Behavioral Sciences. Your paper has been evaluated by external peer reviewers. Please revise your manuscript according to the reviewers' comments.

After revision, authors are obliged to upload a Word file containing the reviewers' comments and their responses to all comments, one by one.

Besides, please pay attention to the word count limitation:
Word count limits are declared in this link: http://kowsarpub.com/en/index.php/services/for-authors/895-word-count

We look forward to receiving your revised manuscript. Thank you for sending your work to the Iranian Journal of Psychiatry and Behavioral Sciences. The full manuscript file must be highlighted to indicate revised text.

2

Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Dear Editorial Group of the **Iranian Journal of Psychiatry and Behavioral Sciences**

We express our gratitude for allowing us to submit a revised version of the manuscript entitled "**The effect of facial emotional feedback through facial electrical stimulation on the amount of mood change and its clinical application in subjects with mild depression: A multiple baseline case study**". Furthermore, we would like to extend our appreciation to the reviewers for their constructive feedback and valuable comments, which helped us improve the manuscript. The revised version has been uploaded with this letter, and we have addressed all the reviewer comments, which are included along with our responses. We sincerely hope that the revised manuscript meets the requirements for publication in your esteemed Journal.

Sincerely yours

M.N.

Reviewer 1

Title:

1. *Replace subject with participant*

- Thank you for your comment. We have substituted the term of »subject« with »participants« (highlighted in the Title)

Abstract:

2. *Add conclusion*
3. *Write keywords based on mesh and in alphabet turn*

- We appreciate your feedback and have added a conclusion to the abstract section as per your suggestion. We believe that this addition will help summarize the key findings of our study and provide a clear message to the readers (highlighted in the abstract)

- We have carefully considered your suggestion and have added keywords based on MeSH (Medical Subject Headings) in alphabetical order as per your recommendation. We appreciate your input and believe that this addition will enhance the discoverability and indexing of our manuscript (highlighted in the abstract).

Introduction

3- The experimental background of the research should be short and only the results of the studies should be completely relevant and original to be critically reviewed. The purpose of reviewing the research literature is not to copy it, but to make a critical review through which the research question is clarified.

- Thank you for your valuable comment. We have carefully reviewed the experimental background section of our manuscript and have shortened it to only include essential information that is relevant to our study. We have made sure to highlight the originality of our research results and have focused on presenting a clear and concise message to the readers.

Method
4- Report demographic characteristics in the result section (Table 1. Participants' Socio-Demographic and Clinical Characteristics)
5- Year of study?
6- Add a statistical analysis section at the end of the method and explain how to perform descriptive and analytical statistical analyzes as well as the software used.
7- Add psychometrics properties of Persian version of Measures
Results

- Thank you for your comment. We agree with your suggestion and have included a table in the results section (Table 1. Participants' Socio-Demographic and Clinical Characteristics) that reports the demographic characteristics of our participants.
- Thank you for your comment. We appreciate your feedback and have added the year of the study in the Abstract and Procedure section to provide clarity (highlighted in the abstract and procedure section)
- Thank you for your valuable comment. We have carefully considered your suggestion and have added a statistical analysis section at the end of the method. In this section, we have explained the descriptive and analytical statistical analyses performed in our study and have provided information about the software used. We believe that this addition will help readers understand the statistical methods used to analyze our data and will increase the transparency of our research. (highlighted at the end of materials and methods)
- Thank you for your valuable feedback. We have added the psychometric properties of the Persian version of the measures used in our study in the section on measures. (highlighted at the measures section)

Results
8- Result begin without any text. You present table without any explanation
9- Nowhere in the results text is reference to Figure 3 or its data explained. Explain the content of Figure 3 in the appropriate place and refer to it for details
10- What is meant by mixed model analysis? Explain this method in the statistical analysis section and provide a suitable reference if needed.

- Thank you for your comment. We made an effort to enhance our results section by including a concise introduction that outlines what will be presented in the section. Additionally, we ensured that each chart or table was accompanied by adequate and relevant explanations to help readers fully comprehend the presented data (highlighted: in the first paragraph of the Results)
- We made the necessary adjustments and explained the content of Figure 3 at the end of the results section. We also referred to it for details to ensure that readers could better understand the information presented. We are grateful for your feedback and are committed to improving our work based on the constructive criticism we receive. (last paragraph of the Results)
- Thank you for your constructive comment. In the statistical analysis section, we provided a comprehensive explanation of the mixed model analysis. To support our discussion, we also cited various references that have contributed to the development and understanding of mixed model analysis. (highlighted: in the statistical analyses section)

Discussion
11- Paragraph 2 is very long, please divided to 2 or 3 Paragraph
12- Some text have not any references … e.g. ….However, what sets our study apart from Kapadia et al.,

- Thank you for your feedback. We divided the second paragraph into two separate paragraphs based on the concepts presented in the text. We hope to make the content more organized and easier to follow for the reader.
- The mentioned reference has been included in the relevant position within the text. Thank you for your feedback.

Conclusion
14- Conclusion isn't appropriate. Don't simply repeat yourself or focus on minor details, the conclusion is the time to paint with broad strokes and point the way forward. Allow yourself to go beyond the narrow confines of the details and into the powerful conclusion of your work. Here is the time to give it meaning and significance.
15- Please mention more limitation and suggestions for future study, and declare limitations and suggestions in specific, and precise manner.

- Thank you for your valuable feedback on the conclusion section of our work. We appreciate your guidance on how to approach this section with a broader perspective and focus on the bigger picture. We have sincerely considered and implemented your suggestions and have revised the conclusion accordingly. We have expanded our discussion to provide a more comprehensive view of the implications of our work. We have highlighted the significance of our findings and the potential impact they could have in the field. We have also pointed the way forward by discussing possible avenues for future research and development.
- Thank you for your insightful comment. We have carefully revised the limitations and suggestions section of our study based on your feedback. We now provide more specific and precise limitations, as well as suggestions for future research. We hope that these revisions have helped to address your concerns and that our study can contribute to further research in this important area. (highlighted: at the end of the discussion)

References
16- Write references according to journal format….On the other hand, Kapadia et al. (2019) discovered
17- Update references

- The mentioned reference has been included in the relevant position within the text. Thank you for your feedback.
- Thank you for bringing this to our attention. We acknowledge that there can be a time gap between theoretical and practical articles in any research field, and we appreciate your understanding of our need to use some older papers in this study. We made sure to carefully select the relevant literature, including the paper by Zajonc et al. (reference number 39), and incorporated it into our study to the best of our ability. Furthermore, we made every effort to incorporate all pertinent sources available in this field. However, it is important to acknowledge that there is a scarcity of practical resources currently available in this area of research.

Reviewer 2

Thanks to the authors for considering IJPBS for their submission.
Regarding this manuscript, it should be said that it is a clinical trial study. As a result, before starting these studies, in addition to the code of ethics, they should have been registered in one of the reliable sources of protocol registration of these studies; such as the Iranian Clinical Trial Center (IRCT), and this code should be reported in the ethical considerations section. However, currently such a code does not exist in the text of the manuscript, nor is such a protocol visible in IRCT. In the event that, this registration code is required to continue reviewing. In addition, the study must be written according to the CONSORT guideline. Moreover, applying of mixed model analysis (what kind? linear/logistic/...) for six sample size was done according to what statistical reasoning?

- Thank you for your comments. We are grateful for your feedback and are committed to improving our work based on the constructive criticism we receive. According to your comments, we will try to explain the three technical and theoretical issues more clearly:
  1. Respectfully, this article is extracted from the first sub-study of a doctoral thesis. In this primary research, we sought to investigate the feasibility and applicability of facial emotional feedback through electrical stimulation as an intervention in improving depressive mood. Because of some ethical and technical reasons, we used multiple baseline single-subject experimental designs (SCED) for this research. As you mentioned, randomized Controlled Trials (RCTs), are typically considered the recommended approach for conducting research of this nature. However, some authors, such as Barlow and Hersen (1), have acknowledged that single-case designs can also be used as a standalone experiment or as a complementary research method to RCTs. As you know, Single-Case Experimental Designs (SCEDs) are gaining recognition as valuable methods in clinical research for assessing individual client progress and evaluating the effectiveness of interventions(1). A significant benefit of this approach is that it enables the testing of novel interventions before proceeding to demanding and expensive RCTs (2). Additionally, SCEDs might be the sole method to evaluate treatment feasibility. This is due to the potential loss of crucial information that could occur in group analyses or the rarity of the condition, which might make it impractical to conduct a group study within a limited timeframe (3). (highlighted: at the end of the discussion)
  2. Respectfully, for clarifying the statistical analysis method used in this research (linear mixed model analysis), we added a new section to the manuscript titled Statistical analyses). In this section, we provided a comprehensive explanation of the mixed model analysis. To support our discussion, we also cited various references that have contributed to the

development and understanding of mixed model analysis. (highlighted: in the statistical analyses section)

3. Also, about the number of cases for applying mixed model analyses in single-subject design, although, there is no set rule for determining the number of cases required for mixed model analysis in single-subject design. However, some researchers suggest that a minimum of three cases is necessary to fit a random coefficient model, which is a common type of mixed model used in single-subject design (table 1 (4)).

TABLE 1. Summary of What Works Clearinghouse criteria for experimental designs.

Design element	Meets standards	Meets standards, but with reservations	Does not meet standards
Independent variable(s)	Actively manipulated by researcher	—	Researcher does not control changes to conditions
Dependent variable(s)	Measured systematically over time	—	No systematic measurement (e.g., anecdotal case study)
	Measured by more than one assessor	—	Only one assessor
	Includes interassessor agreement on at least 20% of data points in each phase	—	No interassessor agreement, only in some phases, or in less than 20% of data points
	Interassessor agreement meets minimal thresholds	—	Poor interassessor agreement
Length of phases	At least 5 data points per phase	3–4 points per phase	< 3 points per phase
Replication of effect	General:	—	< 3 replications
	3 attempts to demonstrate the effect at three points in time or with three phase repetitions		
	Reversal/withdrawal:	—	< 4 phases (e.g., AB, ABA, BAB)
	4 phases per case (e.g., ABAB)		
	Changing-criterion:	—	< 3 criteria
	3 criteria		
	Multiple-baseline/multiple-probe:	—	< 3 cases; < 6 phases
	6 phases across at least three cases		
	Alternating treatments:	Only 4 repetitions	2 treatments without baseline
	2 treatments compared to baseline or 3 treatments compared to each other		
	5 repetitions of each condition		< 4 repetitions

Reviewer 3

Abstract:

1. *A structured abstract is required, including these headings: Background, Objectives, Methods, Results, Conclusions*
2. *In all cases except $p < 0.001$, report the exact value, not $p < 0.05$.*

- Thank you for your attention. Conclusion have added to the Abstract section (highlighted in the abstract section)
- Thank you for bringing this to our attention. We reported exact values in all cases that you mentioned. (highlighted in the abstract section)

Introduction

1. *Do the referencing in the requested format of the journal*

- Thank you for your valuable comment. We did referencing according to the journals format.

Method

1. *Report demographic characteristics in the result section (Table 1: Participants' Socio-Demographic and Clinical Characteristics)*
2. *Some of the presented contents have been repeated in different parts, for example, these sentences have been presented once in the Participants part. Please review the method and avoid repeating the content.*
3. *Modify the ethical code to the following format: IR.USWR.REC.1400.121*
4. *Add a statistical analysis section at the end of the method and explain how to perform descriptive and analytical statistical analyzes as well as the software used.*

- Thank you for your comment. We agree with your suggestion and have included a table in the results section (Table 1. Participants' Socio-Demographic and Clinical Characteristics) that reports the demographic characteristics of our participants.
- Thank you for your comment. We have revised the text and removed the repeated sentences. We appreciate your careful reading and helpful feedback.
- We have modified the ethical code according to your suggestion. Thank you for your attention to detail and guidance. (highlighted at the end of Procedure section and in the footnotes)
- Thank you for your valuable comment. We have carefully considered your suggestion and have added a statistical analysis section at the end of the method. In this section, we have explained the descriptive and analytical statistical analyses performed in our study and have provided information about the software used. We believe that this addition will help readers understand the statistical methods used to analyze our data and will increase the transparency of our research. (highlighted at the end of materials and methods)

Results

1. What is meant by mixed model analysis? Explain this method in the statistical analysis section and provide a suitable reference if needed.
2. Post [treatment and 1month follow-up was statically significant, based-on an appropriate non-parametric test?? Add p-value column for these results in table 2.
3. Nowhere in the results text is reference to Figure 3 or its data explained. Explain the content of Figure 3 in the appropriate place and refer to it for details.
4. In all cases except $p < 0.001$, report the exact value, not $p < 0.05$.
5. Provide the meaning of the significant results obtained from this model. Merely presenting p is not enough. For example, in the text of the results, explain what is meant by the value of 0.357 for Negative affect in F stimulation?! Also, explain this model and the reasons for using it in the method.

- Respectfully, for clarifying the statistical analysis method used in this research (linear mixed model analysis), we added a new section to the manuscript titled Statistical analyses). In this section, we provided a comprehensive explanation of the mixed model analysis. To support our discussion, we also cited various references that have contributed to the development and understanding of mixed model analysis. (highlighted at the end of materials and methods)
- Thank you for your valuable comment. We agree that Figure 3 needs more explanation in the text. We have added a paragraph in the results section that describes the main findings of Figure 3 and how they relate to our research question. We have also referred the reader to Figure 3 for more details and visual representation of the data. We hope that this revision clarifies the meaning and importance of Figure 3 for our study. In addition, the results related to the significant difference between the scores of the follow-up stage and the intervention stage were mentioned in the text (last paragraph of Results)
- Thank you for bringing this to our attention. We reported exact values in all cases that you mentioned (highlighted in the abstract and Results)
- We appreciate your comment and we agree that the significant results need more interpretation. We have added a section in the discussion that provides the meaning of the significant coefficients obtained from the model. (highlighted at the second paragraph of *Comparisons across Study Phases subsection)*

Reviewer 4

1. Please add a conclusion to the abstract
2. Please rephrase the following sentence to enhance the clarity:
"The interventions were introduced systematically in one condition while baseline data collection continues in the others".
3. Six patients were included in the analysis. Does the inclusion of just six patients compromise the reliability of the results? In other words, please apprise the power of your study.
4. Who interviewed the patients?
5. The setting of the study has not been discussed in details.
6. According to the authors, the participants were randomly divided into two groups. How did you assign them randomly?
7. Please explain the demographic characteristics of the included patients at the first part of the results.
8. What are the strengths of your study compared to other similar research?

- Thank you for your comment. We have followed your advice and added a conclusion to the abstract section. We think that this addition will highlight the main results of our study and convey a clear message to the readers.
- We thank you for your suggestion. We have rephrased the sentence, *"The interventions were introduced systematically in one condition while baseline data collection continues in the others",* to make it clearer. We hope that this revision improves the readability of our paper. (highlighted: last 4 lines of Design subsection)
- We are grateful for your feedback. According to some researchers there is no fixed rule for the number of cases needed for mixed model analysis in single-subject design. However, a random coefficient model, which is a typical mixed model for single-subject design, requires at least three cases to fit the model (4).
- We appreciate your interest in our study. Clinical psychology PhDs interviewed the patients. We added this to the procedure section. We hope this clarifies the interviewers' role in our study.
- Thank you for your valuable comment. We agree that the setting of the study is an important aspect to consider. We have added more details about the setting of intervention in the revised manuscript, such as the location, duration, and participants, and details of intervention sessions of the study. We hope that this will clarify the context and scope of our research. (highlighted at the end of Intervention subsection)

- We appreciate your interest in our study design. We used a computer-generated random number sequence to assign the participants into two groups of stimulation. We have explained this method in more detail in the revised manuscript. We hope that this will address your concern and enhance the validity of our study. (highlighted in the section of procedure: lines 8 to 15)
- We appreciate your feedback. We have followed your recommendation and added a table in the results section (Table 1. Participants' Socio-Demographic and Clinical Characteristics) that shows the demographic characteristics of our participants.

1. Hersen M. *Single-case experimental designs*. Springer; 1990.
2. Norell-Clarke A, Nyander E, Jansson-Fröjmark M. Sleepless in Sweden: A single subject study of effects of cognitive therapy for insomnia on three adolescents. *Behavioural and Cognitive Psychotherapy*. 2011;**39**(3):367-74.
3. Maric M, Wiers RW, Prins PJ. Ten ways to improve the use of statistical mediation analysis in the practice of child and adolescent treatment research. *Clinical child and family psychology review*. 2012;**15**:177-91.
4. Byiers BJ, Reichle J, Symons FJ. Single-subject experimental design for evidence-based practice. 2012.

2 Revision 1

2 comments · 11 Jun 2023 – 24 Jun 2023

Referee 3 Reviewer

ACCEPT 11 Jun 2023

Thanks.

Editor-in-Chief

MINOR REVISION 24 Jun 2023

Thank you for your recent revisions.
Your paper has now been evaluated again. According to the reviewers' and associate editor's comments, it needs some more revisions. Please make your revisions according to these comments. I would appreciate it if you could make the revisions as soon as possible using the Track Changes mode in MS Word and colored text.

3

Revision 2

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Dear Editor of the **Iranian Journal of Psychiatry and Behavioral Sciences**

We are grateful to you and the reviewers for your time and effort in reviewing our manuscript and giving us valuable feedback. Your comments helped us to improve the quality and clarity of our work. We have carefully addressed each comment and made the necessary minor revisions. We hope that the manuscript now meets your high standards. We are open to any further suggestions or questions that you may have.

Below we provide our detailed responses to each comment. All changes in the manuscript are marked in yellow.

Sincerely yours

M. N.

On behalf of the authors

A. P.

Sh. Sh.

B. A.

B. D.

S. R.

1-The comment of Reviewer 3 in the result section about adding the p-value column for the results in Table 2, was not responded.

- We appreciate your feedback and have added a p-value column for the results in Table 2. Also, the necessary explanations about the test results are provided (*highlighted with yellow lines* at the end of the ***Comparisons across Study Phases*** section*)*

2- As Reviewer 4 commented, you didn't mention the strength of your study compared to other similar research, however you The last paragraph in the discussion is too long, please divided it into two part
In some of the sentences, you didn't follow Punctuation marks, for example, in the Comparisons across Study Phases section, paragraph 2 in line 7, put a point after the end of the sentence to be better understood by the reader.

- We appreciate your helpful suggestion. We have revised the discussion section to highlight the strength and novelty of our study (paragraph four; lines 10-15; *highlighted with yellow*). We think that this clarification will make it clear to the readers how our study differs from and advances the existing literature in this field.
- Thank you for your feedback. We divided the last paragraph of the discussion into two separate paragraphs based on the concepts presented in the text. We hope to make the content more organized and easier to follow for the reader.
- We thank the reviewer for pointing out the punctuation errors in our manuscript. We have carefully checked and corrected all the punctuation marks throughout the manuscript. We apologize for any inconvenience caused by these errors and we hope that they do not affect the readability and quality of our work.

3 Revision 2

4 comments · 9 Jul 2023 – 18 Jul 2023

Referee 4 Reviewer

ACCEPT 9 Jul 2023

The effect of facial emotional feedback through facial electrical stimulation on the amount of mood change and its clinical application in participants with mild depression: A multiple baseline case study

Dear Authors
Many thanks for your special and interesting work. You have addressed all the comments point by point, which makes your study invaluable.
Good luck
Sincerely
S.S

Referee 3 Reviewer

ACCEPT 16 Jul 2023

accept

Associate Editor

ACCEPT 16 Jul 2023

Thanks.

Editor-in-Chief

ACCEPT 18 Jul 2023

We have completed our review of your manuscript and are pleased to inform you that it is being considered for publication in the IJPBS. Note that the publication of your article will only be finalized with your cooperation in the editorial process.
Thank you for your fine contribution. On behalf of the Editors of IJPBS, we look forward to your continued contributions to the Journal.