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OPEN PEER REVIEW

Design, Implementation, and Evaluation of Virtual Training on Principles of Physical Medicine and Rehabilitation Based on the ADDIE Model for Medical Students During the COVID-19 Pandemic

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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

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1 Original submission

2 comments · 24 Jun 2023 – 3 Jul 2023

Referee 1 Reviewer

MAJOR REVISION 24 Jun 2023

The authors referred to a one sample t-test in the manuscript, indicating a comparison of two sets of means, although there were no related analyses. No inferential statistics were available.

It was a form of material development, and no actual practice has occurred in the target setting, so there is no guarantee that it will be truly influential for the students in practice.

Please find the attached file.

Referee 2 Reviewer

MAJOR REVISION 3 Jul 2023

Dear Colleagues,
Thank you for your effort and for reporting on your project. I have reviewed your manuscript and noticed that it needs to be rearranged in accordance with medical education terminology. Particularly, I would like to emphasize the importance of using the term "integration" instead of "combination," as integration is a crucial aspect of your work.
To assist you with this, I recommend referring to an article that can provide valuable insights into curriculum planning and evaluation. The article you can consult is titled "The Integration Ladder: A Tool for Curriculum Planning and Evaluation" by Harden RM, published in Medical Education (Oxford) in July 2000 (volume 34, issue 7, pages 551-557).
Please make sure to rewrite all sections of your manuscript based on the concepts and principles outlined in this article. By incorporating the recommended terminology and ideas, you will improve the clarity and effectiveness of your work.

Thank you for your attention to this matter.
Best regards

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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.

Subject: Revision of manuscript "*Design, Implementation, and Evaluation of Virtual Training on the Principles of Physical Medicine and Rehabilitation based on the ADDIE Model for Medical Students during the COVID-19 Pandemic "*. (ID:136846)

Dear EIC

Thank you for your letter and the opportunity to revise our paper on 'Design, Implementation, and Evaluation of Virtual Training on the Principles of Physical Medicine and Rehabilitation based on the ADDIE Model for Medical Students during the COVID-19 Pandemic'. The suggestions offered by the reviewers have been immensely helpful, and we appreciate your insightful comments on different aspects of the manuscript.
I have included the reviewer comments immediately after this letter and responded to them individually, indicating exactly how we addressed each concern or problem. We have tried to answer the questions to the best of our ability based on the information we have. The revisions have been approved by all authors. We hope the revised manuscript will better suit the Journal of *Asian Journal of Sports Medicine (AsJSM)* and we thank you for your continued interest in our research.

We look forward to hearing from you soon.

Sincerely,

Elaheh Mianehsaz *(corresponding author)*

Reviewer comments:

Reviewer 1

1. ***The authors referred to one sample t-test in the manuscript indicating comparing two sets of means while there were no related analyses. No inferential statistics were available.***

Response:
Thank you so much for your thoughtfulness. We apologize for this mistake in the text of the manuscript. These mistakes were corrected.

2. ***It was a kind of material development and no actual practice has occurred in the target setting, so there is no guarantee to be really influential for the students in practice.***

Response:

- Thank you for your comment. The concern that you raised in your comment is completely correct and it was our concern at the time of conducting the study and we are also aware of this issue. The conditions of our study during the COVID-19 crisis and the absence of students caused us to focus our main goals on the "cognitive" and "affective" domain and we were excused from considering the "psychomotor/practice" domain. We have stated this issue clearly in manuscript (Please refer to "Results section", page 4, line 114-117). Also, based on your comment, we added and highlighted this topic as study limitations. This response was

added in the manuscript file (Please refer to the “Discussion section”, page 7, line 271-280)

- On the other hand, despite the limitation we had in the psychomotor/practice domain and although definitely learning a lesson and evaluating it in person and in a real or simulating environment had deeper learning and better evaluation, we tried to reduce this limitation to some extent by creating diversity in material presentation (such as; multimedia files, description of clinical cases, videos and different photos of examination tools and PE techniques, podcasts and text files) and various evaluation methods (taking into account a variety of evaluation exam such as multiple-choice question, short-answer, case-based essay questions along with related images and two videos with and without errors and discovering them by students). This response was added in the manuscript file (Please refer to the “Discussion section”, page 7, line 271-280).

Dear reviewer, you put this sentence at the end of your comments “Please find the attached file”. Unfortunately, that file was not uploaded to the system and we did not see it!

Reviewer 2

Dear Colleagues,

Thank you for your effort and the report of your project. I have reviewed your manuscript and noticed that it needs to be rearranged in accordance with medical education terminologies. Particularly, I would like to emphasize the importance of using the term "integration" instead of "combination," as integration is a crucial aspect of your work. To assist you with this, I recommend referring to an article that can provide valuable insights into curriculum planning and evaluation. The article you can consult is titled "The Integration Ladder: A Tool for Curriculum Planning and Evaluation" by Harden RM, published in Medical Education (Oxford) in July 2000 (volume 34, issue 7, pages 551-557).

Please make sure to rewrite all sections of your manuscript based on the concepts and principles outlined in this article. By incorporating the recommended terminology and ideas, you will improve the clarity and effectiveness of your work.

Response:

Thanks for your thoughtfulness and the good points you mentioned. We also greatly appreciate you for introduce paper of Harden RM. It was so nice and helpful. We have read this article thoroughly. In our study, we did not have the concept of "integration" in the sense that you mentioned in your comment and its principles and steps were discussed in detail in Harden's article because:

1-Principles of physical medicine and rehabilitation (PMR) course is one of the elective courses (Non-core) of the general medical curriculum in our country and we didn't have specific headings and content for this course, so the researchers of the study, using their clinical experiences determined the headings and content for this course (in course plan) into two main sections of “musculoskeletal” and “rehabilitation medicine”. (Please refer to “background section”, page 2, line 43-44)

The work we did in this study and presented in response to your comment shows that we have not had any integration regarding adding this course to the curriculum. On the other hand, teaching the content of this course was provided by two teachers with one specialty (physical medicine and rehabilitation) (Please refer to “discussion section”, page 6, line 227-

231), and we did not use other specialized fields, such as; orthopedist, anatomist or other disciplines or specializations, therefore we did not integrate here either.

2 Revision 1

1 comment · 7 Sep 2023

Referee 1 Reviewer

MAJOR REVISION 7 Sep 2023

It was an interesting topic; however, there were some points to be considered.
1. Compiling a set of materials such as videos, podcasts, and text files… does not necessarily mean designing a set of standardized materials for a course. First, how did you evaluate the developed materials themselves as standard materials to be presented to the target group?
2. In general, the processes and stages of developing, implementing, and evaluating the materials have not been well depicted and defined, so the reader misses the flow of the study. It is suggested that the author(s) exemplify different stages of materials development and study implementation and evaluation according to the ADDIE Model.

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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.

Subject: Revision of manuscript "*Design, Implementation, and Evaluation of Virtual Training on the Principles of Physical Medicine and Rehabilitation based on the ADDIE Model for Medical Students during the COVID-19 Pandemic "*. (ID:136846)

Dear EIC

Thank you for your letter and the opportunity to revise our paper on 'Design, Implementation, and Evaluation of Virtual Training on the Principles of Physical Medicine and Rehabilitation based on the ADDIE Model for Medical Students during the COVID-19 Pandemic'. The suggestions offered by the reviewers have been immensely helpful, and we appreciate your insightful comments on different aspects of the manuscript.
I have included the reviewer comments immediately after this letter and responded to them individually, indicating exactly how we addressed each concern or problem. We have tried to answer the questions to the best of our ability based on the information we have. The revisions have been approved by all authors. We hope the revised manuscript will better suit the Journal of *Asian Journal of Sports Medicine (AsJSM)* and we thank you for your continued interest in our research.

We look forward to hearing from you soon.

Sincerely,

Elaheh Mianehsaz *(corresponding author)*

Reviewer comments:

Reviewer 1

It was an interesting topic; however, there were some points to be considered.

1. ***Compiling a set of materials such as videos, podcasts, text files and… does not necessarily mean designing a set of standardized materials for a course. At first how did you evaluate the developed materials themselves as standard materials for the target group to be presented?***

Response:

Dear Reviewer

Thank you for your valuable comment, we also agree with your comment that a set of contents, including video, etc., cannot necessarily be a proof that they are standard, and in our manuscript, we have not made a claim that the contents of the course are standard. Piloting and evaluation of materials developed for the target group is required before actual implementation and we agree with your comment, but we were limited to do this for two reasons: (We also added and highlighted the following two limitations in the study limitations section. Please refer to the "Discussion, page 8, line numbers 299-303")

1- The course that we designed is in the form of a university course unit that students choose and have to pass, so due to time constraints, the educational rules of the faculty, etc., the possibility of piloting the content was not possible for us.

2- Due to the conditions of COVID-19 and the problems we were facing at that time and the lack of attendance and difficult access to students, it was difficult for us to implement the content pilot and follow it up.

Considering that the course of principles of physical medicine and rehabilitation was presented face-to-face in the university for two years prior to this study, therefore, based on the experiences of the two authors of the article (EM and NJ), who are experts in physical medicine and rehabilitation and one of the instructors of the course and based on the oral feedback they received from the semester students, they designed the content needed for this course. Therefore, the use of the results of the evaluations and the comments of the students and teachers of the two previous courses (face-to-face course) in the design, implementation and evaluation of the new (virtual course), to some extent, could cover our limitation in piloting the content. (We added and highlighted these explanations in the text of the manuscript. Please refer to the “Materials and Method section” and “lines 64-68”) among the cases where the evaluation results of the previous two periods were used in the new period, the following can be mentioned:

1- Revision of the lesson (theory and practical part):
Due to the time limit in the theory sessions of the face-to-face course, topics such as; Gates and walking aids such as canes, crutches, and wheelchairs could not be provided to students. Therefore, in the new virtual course, this possibility has been provided and this topic was also added to the course topics. Also, due to the virtualization of the new course, the number and size of the practical unit of the lesson was reduced, and some topics, such as gates, walking cycle, normal gait cycle were added to the course plan. (We added and highlighted these explanations in the text of the manuscript. Please refer to the “Result section”, page 5, line numbers “182-198”)

2- Change in lesson presentation from lecture-based approach to problem-based approach. Also, presenting sports in a more practical way and by presenting videos in the field of rehabilitation phases (For example, to provide gates). (We added and highlighted these explanations in the text of the manuscript. Please refer to the “Result section”, page 5, line number “lines 190-191”)

2. ***In general, the processes and stages of developing, implementing and evaluating of the developed materials had not been well depicted and defined so that the reader misses the flow of the study. It is suggested that the author/s exemplify different stages of the material developments and also study implementation and evaluation according to the ADDIE Model.***

Response:

Thanks for your comment. We have added explanations in the text of the manuscript in response to your comment (Please refer to the “Result section”, page 5, lines number “164-165, 175-179, 182-198 and lines numbers “200-208)

3 Revision 2

1 comment · 3 Nov 2023

Referee 1 Reviewer

REJECT 3 Nov 2023

1. The purpose was to design, implement, and evaluate a virtual physical medicine and rehabilitation (PMR) course for the target group, in this case medical students, during the COVID-19 pandemic. Still, it is possible to present the same course at present with approximately the same results; that is, implementing a set of materials and teaching them virtually does not guarantee the superiority of the method applied.

2. Since no comparison has been made with any other group or groups in the study, the results seem biased and unreliable.

4

Revision 3

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

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We look forward to hearing from you soon.

Sincerely,

E. M. *(corresponding author)*

Reviewer comments:

Reviewer 1

1. The purpose was to design, implement, and evaluate a virtual physical medicine and rehabilitation (PMR) course for the target group, here medical students, during the COVID-19 pandemic. Still, it is possible to present the same course in present with approximately the same results, that is, implementing a set of materials and teaching them virtually does not guarantee the superiority of the method applied.

Response:
Dear Reviewer
Thank you for your valuable comment. Your comment is absolutely correct and we agree with it. But as we said in the answer to the previous review, we do not have any claim that the method used in our research (virtual training course on the Principles of Physical Medicine and Rehabilitation) is superior to the similar face-to-face course, and our main goal and focus in this study was not to present such a result to our audience. On the other hand, the comparison of face-to-face and virtual methods of the physical medicine and rehabilitation course was not the main goal of our research and we were not able to do such a thing in the conditions of COVID-19 (we clearly stated this issue in the limitations of the study).
Our main goal and focus in this research and what we were interested in conveying to our audience includes two things; 1-instructional design approach based on ADDIE model, which is used to design, implement and evaluate this course. This approach and model is one of the scientific disciplines of health profession education, which as a model can help researchers

related to the subject to design similar virtual courses. 2- considering that the course on the principles of physical medicine and rehabilitation is one of the non-core courses in the general medical curriculum of Iran and there is no specific heading in the curriculum, therefore, the presentation of the course plan, contents and materials designed in this course can help the specialists in the field of physical medicine and radiation as a resource to better present this course and facilitate their teaching process.

2. Since no comparison has been done to any other group/s in the study, the results seems biased and unreliable.

Response:
Dear Reviewer
Thanks for your comment. Our research method is a pre-experimental or quasi-experimental design of research. As you know, this type of research is one of the branches of experimental research and is used when it is not possible for the researcher to randomly assign the samples to two experimental and control groups. Therefore, we chose this method for our research, because 1- our main goal of conducting this research was not to compare two groups and 2- due to the conditions of COVID-19 and the lack of access to students, the possibility of dividing into two groups and considering a control group was not possible for us, (we mentioned in the limitations section of the study).

4 Revision 3

0 comments

No public comments in this round.