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OPEN PEER REVIEW

The Effect of Acceptance and Commitment Therapy on Psychological Flexibility and Emotional Regulation in Patients with Spinal Cord Injuries: A Randomized Controlled Trial

Mohammad Saeed Khanjani, Javad Kazemi, Jalal Younesi, Asghar Dadkhah, Akbar Biglarian, Banafsheh Ebrahimi barmi

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1 Original submission

1 comment · 15 Aug 2020

Referee 1 Reviewer

MAJOR REVISION 15 Aug 2020

Dear Researcher,
Greetings and thank you.
With greetings and best wishes,
In the abstract
Please state the year and location of the study in the abstract.
The abstract should follow the journal's format.
The patient inclusion and exclusion criteria should be stated in the abstract.
The keywords should be based on MeSH.
In the introduction
Emotional regulation, the dependent variable, is not discussed in the introduction.
The independent variable, ACT, is not explained at all and needs to be explained.
In addition, research articles on the effectiveness of the treatment method for emotional regulation and cognitive inflexibility should be cited. Has this treatment method affected these two variables in previous studies?
ACT can affect cognitive inflexibility, and if it has any effect on emotional regulation, it is entirely indirect.
Dialectical behavior therapy affects emotional regulation. The question is why ACT was investigated in relation to this variable. If you have a justification, please provide it.
The objective stated at the end of the article is lengthy and should be expressed in one or two lines, usually reflecting the topic itself. Remove the additional explanations. Explanations concerning the effectiveness of ACT should be based on scientific sources and included in the introduction.
In the methods, information about the design appears in the sampling section, whereas it should appear at the beginning. In addition, much of the explanation is unnecessary. It would be better to explain the design, study population, sampling, sampling method, type of intervention, participant inclusion and exclusion criteria, and study procedures, and to remove unnecessary material.
Results
The results state that 39 patients were excluded from the study. Please specify how many patients who met the inclusion criteria were excluded and why they were excluded. Also, this information belongs in the methods, not here.
Report the effect size.
Discussion
The discussion is lengthy; limit it to a maximum of two pages.
Begin the discussion with the main finding of the study, provide scientific support for the findings, and cite studies with consistent and conflicting results. Do the same for the secondary findings. The variables do not need to be explained in the discussion. There are additional explanations of the variables that should be removed or made very brief.
In the discussion, cite sources that provide scientific support for the effectiveness of the intervention method on the dependent variables in patients relevant to this study. One study cited concerns patients with autism, not patients with pain.
Another part of the discussion refers to distress tolerance and provides explanations that are not related to the title at all and, in my opinion, are unnecessary. You should provide explanations about emotional regulation. In addition, to provide scientific support for your findings, you have cited studies conducted in people with addiction and people with psychosis, rather than patients with chronic pain. Resilience is also

mentioned, although it is not related to the article's topic at all.
The study type is mentioned at the end of the discussion, which is unnecessary.
Provide a brief conclusion in two lines and offer suggestions for improving future studies, as well as addressing the usefulness of this study method for the community.
Overall, the discussion should be rewritten.
There are too many references; a maximum of 40 is sufficient. Remove old references, books, and references that are not particularly relevant, and cite at least two or three references from 2020.
Thank you.

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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.

Thank you for the useful and constructive comments concerning our manuscript entitled **"The Effect of Acceptance and Commitment Therapy on Psychological Flexibility and Emotional Regulation in Patients with Spinal Cord Injuries: A Randomized Controlled Trial".** We have studied your comments carefully and made a major correction which we hope meet with your approval. We answer your questions or comments in the following table.

(Reviewer 1):

	Points	**Response**
(	Explain about Method of recruitment of samples.	The sampling method in this study was initially purposive and based on inclusion and exclusion criteria and then it was randomly divided into experimental and control groups. The correction was made in the abstract.
(	How sample size was determined?	The sample size was calculated based on Cochran's formula.
(	Delivery method: how was the content given?	The intervention content was presented in an education class.
(	Deliverer: who delivered the intervention?	The educational content was provided to patients by the corresponding author.
(	Setting: where was the intervention delivered?	The content intervention was presented in the auditorium of Shahid Jalaeipour Spinal Cord Injury Rehabilitation Center in Tehran
(	-Check this phrase: 95% confidence and "level of 0/005 statistical significance"	This sentence was deleted and only the Paraphrasing value was mentioned.

	Baseline demographic and clinical characteristics of participants in each group should be presented with P-value. Table 2 is not clear.	Table 2 has been somewhat modified. Usually, in previous similar studies, the p-value is given to compare the two groups, which, if significant, indicates the difference between the two groups in demographic variables, and for each group, the p-value is not written separately in the table.
	Describe the results of the MANCOVA analysis (table 4).	The following description was added: As shown in Table 4, using the (MANCOVA) analysis method and removing the pretest effects, the moderated mean for psychological flexibility with (F = 33.46) and (p = 0.005) and the moderated mean for emotional regulation with (F = 28.90) and (p = 0.005) were significant. This indicates the effectiveness of ACT in improving psychological flexibility (with effect size: 0.614) and emotional regulation (with effect size: 0.579) in patients with spinal cord injury.

(Reviewer 2):

	Points	**Response**
	1- *Please state the year and place of the study in the abstract.*	The place of the study was the Shahid Jalaeipour Rehabilitation Center for Spinal Cord Injury Patients in Tehran, and the year of the study was 2018, which was added to the abstract.
	2- *The abstract should be in accordance with the journal format.*	The abstract was re-arranged in terms of word count, form, and format according to the Instructions for Authors mentioned on the journal website.

	3- *The inclusion and exclusion criteria of the patients should be stated in the abstract.*	The inclusion and exclusion criteria were added to the abstract section as follows. Inclusion criteria included patients aged 20 to 55 years, residing in Tehran, and with at least a high school diploma. The injury duration varied between 1 and 5 years, and the injuries were thoracic and lumbar injuries and intermediate score of psychological flexibility and Emotion Regulation. Exclusion criteria included patients with cervical spinal cord injuries, as well as patients who were simultaneously receiving another psychological treatment together with the subjects who suffered brain damage.
	4- *The keywords should be based on MeSH.*	The keywords were selected from the MeSH section of the PubMed database. However, one of the words, namely psychological flexibility, was not found.
	5- *Nothing has been mentioned in the introduction regarding emotional regulation as the dependent variable....*	At the recommendation of the respected reviewer, the following part was added to the introduction: Emotional regulation refers to the process by which individuals influence which emotions they have, when they have them, and how they experience and express their feelings. Emotional regulation can be automatic or controlled, conscious or unconscious, and may affect one or more points in the emotion production process. In other words, emotion regulation is the ability to exert control over one's own emotional state. It may involve behaviors such as rethinking a challenging situation to reduce anger or anxiety, hiding visible signs of sadness or fear, or focusing on reasons to feel happy or calm

	6- No explanation has been given regarding the independent variable, namely ACT; it needs to be explained.	The following material regarding acceptance and commitment therapy was added to the introduction section. This psychotherapeutic method directly focuses on improving psychological flexibility by virtue of its fundamental philosophy. Seemingly, ACT is suitable for treating inflexibility and emotional regulation because the fundamental philosophy of this approach revolves around reducing psychological inflexibility and the experience of emotions. In other words, preventing experiential avoidance is the core of ACT. This principle aims to teach the patients how to quit the idea of suppressing anxiety, how to detach from unwanted disturbing thoughts, and how to experience unpleasant emotions instead of avoiding them
	7 In addition, research articles related to the effectiveness of the therapeutic method on emotional regulation and cognitive inflexibility should be mentioned, i.e., whether in previous studies this therapeutic method has been effective on these two variables or not?	Four studies on this subject were added to the introduction section. Two articles mention the effects of this therapy on psychological flexibility in obsessive-compulsive patients and also on psychological flexibility in weight control of overweight individuals. On the other hand, studies on the effects of this therapy on emotional regulation of patients with breast cancer and emotional regulation of individuals with dental anxiety were added to the introduction section, although no study directly examining these variables in individuals with spinal cord injury was found. The above-mentioned studies on the effectiveness of acceptance and commitment therapy on these two variables were added to the article as follows. The literature has shown that ACT has a positive effect on psychological flexibility and emotional regulation in different statistical communities. According to some studies, ACT plays an important role in the treatment of obsessive-compulsive patients by increasing psychological flexibility. Another study used acceptance, commitment, and focus on psychological flexibility to help control weight. In addition, ACT has been used for emotional regulation in patients with breast cancer. The results have shown an increase in emotion regulation. Also, in another study, the use of this method in improving emotional regulation in dental patients has been confirmed.

	8- ACT can affect cognitive inflexibility, and if it has any effect on emotional regulation, it is completely indirect, and dialectical behavior therapy is effective on emotional regulation. The question is why ACT has been examined on this variable; if you have a justification, please state it.	The philosophy of acceptance and commitment therapy is to give individuals exercises so that, in addition to the overall goal of the approach, namely increasing psychological flexibility, it indirectly equips individuals, through the six basic processes of this therapy, with skills that enable them to cope with sometimes unpleasant emotions. This is because it is usually pictured in people's minds that a healthy person is someone who does not have unpleasant emotions, and if I have such emotions now, then I am not a healthy person, and in order to be a healthy person I need to take actions to control these emotions. Whereas in acceptance and commitment therapy, the person accepts that unpleasant emotions are intertwined with human beings and that the way to moderate and manage them is not suppression and control, because emotional suppression has the opposite result; the solution is practicing acceptance of emotions instead of trying to control them. In patients with spinal cord injury as well, with the occurrence of the injury, the patient experiences unpleasant emotional experiences. The initial hypothesis of the research was that, by using acceptance and commitment therapy and especially exercises such as mindfulness, we could probably help these patients practice being with unpleasant emotions. In essence, the main problem is in judging and reacting to emotions, in that the person tries not to experience unpleasant emotions, which often leads to failure. However, by practicing being with emotions and experiencing them, the distressing effects of emotions gradually decrease. Of course, this is a skill that is acquired only through practice. The following material was added to the article in summary form based on scientific sources. Moreover, ACT helps one to accept that a healthy person is not someone who does not have unpleasant emotions, but a healthy person is someone who can manage these emotions and experience a kind of life and accompany these emotions and practices such as mindfulness helps the person to exercise being with such emotions.

	9- The objective stated at the end of the article is long and should be stated in one or two lines, which is usually the same as the topic. Extra explanations should be deleted.	The objective of the study was corrected as follows, and at the recommendation of the respected reviewer, the extra explanations were deleted. The aim of this study was to determine the effectiveness of ACT in psychological flexibility and emotional regulation in patients with spinal cord injury.
	10- Explanations related to the effectiveness of ACT should be taken from scientific sources and come in the introduction section.	The following explanations were extracted from scientific sources and added to the article in response to this comment of the respected reviewer. The literature has shown that ACT has a positive effect on psychological flexibility and emotional regulation in different statistical communities. According to some studies, ACT plays an important role in the treatment of obsessive-compulsive patients by increasing psychological flexibility (19). Another study used acceptance, commitment, and focus on psychological flexibility to help control weight (20). In addition, ACT has been used for emotional regulation in patients with breast cancer (21). The results have shown an increase in emotion regulation. Also, in another study, the use of this method in improving emotional regulation in dental patients has been confirmed (22). Considering the effects of ACT on these variables in similar chronic diseases, it seems that considering the problems of spinal cord injury patients in psychological flexibility and emotional regulation, we will examine the effects of ACT on these variables in these patients.

	11- In the methods, the items related to the design are given in the sampling section, whereas they should come at the beginning.	At the recommendation of the respected reviewer, the items related to the design were separated from the sampling section and placed at the beginning of the methods section.
	In addition, many explanations have been given that are not necessary. It is better to explain the design, study population, sampling, sampling method, type of intervention, inclusion and exclusion criteria of individuals, and the implementation method, and to delete unnecessary material.	At the recommendation of the respected reviewer, the necessary items, including the study population, sampling method, type of intervention, inclusion and exclusion criteria of individuals, and implementation method, were explained, and unnecessary material was deleted.

	12- In the results section, it was said that 39 patients were excluded from the study; it should be stated how many patients met the inclusion criteria who were excluded, and what the reason for their exclusion was. In addition, this material does not belong here but in the methods.	This part was moved to the methods section. Accordingly, none of the 69 patients, who met the inclusion and exclusion criteria, were excluded from the study. However, according to the sample size required for group interventions, 30 patients were selected based on their *Medium downward score of psychological flexibility and emotion regulation* to participate in the study and were randomly divided into two groups of 15 controls and 15 intervention subjects

	13- The effect size should be mentioned.	In explaining the matters related to Table 4 in the results section, the effect size was mentioned as follows. This indicates the effectiveness of ACT in improving psychological flexibility (with effect size: 0.614) and emotional regulation (with effect size: 0.579) in patients with spinal cord injury.
	14- The discussion is long; it should be a maximum of two pages.	The discussion was shortened and presented in two pages.
	15- The discussion should start with the main finding of the study, the findings should be scientifically supported, consistent and inconsistent studies should be mentioned, and the same should be done for the secondary findings.	The discussion started with the main findings and was scientifically supported by several studies in which acceptance and commitment therapy had been used in patients with spinal cord injury. However, regarding consistent and inconsistent studies, no study was found that had worked on the effectiveness of acceptance and commitment therapy on psychological flexibility and emotional regulation in patients with spinal cord injury. Of course, in some studies, the effectiveness of this therapy on variables such as stress, anxiety, depression, self-care, and functional independence in patients with spinal cord injury had been examined. Studies conducted on flexibility and emotional regulation in other target populations, such as spouses of veterans, patients with chronic pain, patients with cancer, etc., were used, with the agreement of the respected reviewer and the research team, for alignment and discussion.
	16- In the discussion, it is not necessary to explain the variables. There are extra explanations about the variables that should be deleted or stated very briefly.	The extra explanations about the variables were deleted at the recommendation of the respected reviewer.

	17- In the discussion, regarding the effectiveness of the intervention method on the dependent variables in patients related to the study, sources should be given for scientific support; one study has been mentioned that is on autistic patients, not pain. In another part of the discussion, distress tolerance has been mentioned and explanations have been given that are not related to the title at all, and in my opinion are not necessary; you should provide explanations about emotional regulation. In addition, to scientifically support your finding, you referred to studies conducted on addicts and psychotics, not on patients with chronic pain. In addition, the variable of resilience has been mentioned, which is not related to the topic of the article at all. At the end of the discussion, the type of study has been mentioned, which is not necessary.	Regarding the effectiveness of acceptance and commitment therapy, no study was found that had worked directly on the dependent variables of the present research in the population of patients with spinal cord injury. This therapeutic approach has been used in patients with spinal cord injury on variables such as stress, anxiety, depression, etc., but direct study on the dependent variables of the present research has been conducted in groups other than spinal cord injury, which were mentioned in the text of the article. The studies that were indicated as unrelated in the opinion of the respected reviewer in this comment were deleted. Material was added regarding the explanation of the effectiveness of this therapy on emotional regulation. which was added as follows: as ACT reduced stress, the patients abandoned their useless efforts to control and experiential avoidance and accept their thoughts and feelings as an alternative solution. Spinal cord injury patients had an extreme reaction to the problems they faced, and instead of focusing on balance and moderation, they realized their thoughts and feelings and magnified the issues. Having a balance in expressing emotions and reacting rationally to stress is a goal that is also pursued in emotional regulation (35). It can also be said that spinal cord injury patients had very little patience and endurance against the issues, which made problems and difficulties more pronounced for them. ACT has helped these patients through diffusion exercises interrupt this vicious circle and break down the threating state of these thoughts. Therefore, it seems that the patience of these subjects has increased, and patience is one of the bases of emotional regulation, so that emotional regulation has also increased. Some studies have also suggested a relationship between perceived disability and emotional regulation in spinal cord injury patients (36). It seems that ACT has helped these patients modify their perception of disability through techniques such as discovering intrinsic values and committing to practice based on those values. In other words, by acting according to their values, the

	18- The conclusion should be stated briefly in two lines, and a suggestion should be given for improving future studies and also the efficiency of this study method for the community.	This section was shortened and stated in 2 lines. A suggestion for improving studies and also the efficiency of this method was stated briefly. ACT had a positive impact on psychological flexibility and emotional regulation in patients with spinal cord injury and can help them in psychological rehabilitation. It is recommended to study the effect of ACT on patients with cervical spinal cord injury.
	19- Overall, the discussion should be rewritten.	The discussion was rewritten, and scientific support and consistent or inconsistent studies, to the extent of the available studies, were mentioned.
	20- The number of references is large; a maximum of 40 is sufficient. Old references and books or not very relevant ones should be deleted, and references from 2020 should be cited, at least two or three.	Old references were changed. Only one old reference remained due to the lack of another new study. New references from 2019 and 2020 were used. References that were based on books were deleted unless there was no article in that field.

(Reviewer 3):

	Major Points	**Response**

	1- In the method section: it was written:" Exclusion criteria included …. patients who were absent from more than two sessions". In any research, Inclusion and exclusion criteria were arranged before the beginning of the study. When you allocated 15 patients in each group, you cannot remove them and replace them after starting the research. So you should consider all dropped out patients when you analyse data.	In response to the referee's comments, it should be noted that the exclusion criteria, according to the referee's comments, was set before the study and because the study was a group study, one of the exclusion criteria was that if a participant is absent more than 2 times in Intervention sessions, they should be removed from the study and no participant was supposed to be replaced during the study if a participant dropped out. However, during the study, none of the participants dropped out of the study process and all of them were present in the intervention sessions until the end.
	2- In the method section, the authors mentioned "Dennis and Vander psychological flexibility inventory" but the name of this inventory was wrong. "The Cognitive Flexibility Inventory (CFI) "was developed by Dennis and Vander Wal (2010).	Based on the referee's comment, corrections were made in the method section and the whole text.
	3- "Gross & John Emotion Regulation Inventory " should be corrected as the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003)	Based on the referee's comment, corrections were made in the method section and the whole text.
	. 4- Please explain the sessions were held by who? Where?	The following sentences were added to the text. The content of the intervention was presented as a training class by the corresponding author at the training hall of Shahid Jalaeipour Spinal Cord Injury Rehabilitation Center.
	5- But reference 22 refers to "Ryan CM. 49 Psychologic Factors and Diabetes." That was irrelevant to the validity of the questionnaire in Iran.	This problem was caused by the endnote software, which was fixed as follows. Shareh H, Farmani A, Soltani E. Investigating the reliability and validity of the Cognitive Flexibility Inventory (CFI-I) among Iranian university students. 2014.

	6- The reliability and validity of the" Emotion Regulation Scale" were not discussed.	The validity and reliability of this scale are explained in the relevant section of this questionnaire. The Cronbach's alpha coefficient for the reappraisal and suppression sections was 79% and 73%, respectively. The post-test validity of the entire scale after 3 months was 69%. The internal consistency coefficient obtained by Gross and John for the reappraisal section using state employees and catholic students at the University of Milan varied from 0.48 to 0.68, while it varied between 0.42 and 0.63 for the suppression subscale(23). The Persian version of this scale is used in the present study. The validity of this scale was satisfactorily using the internal consistency method (Cronbach's alpha score is between 0.60 and 0.81). Also, the validity was satisfactory. the use of varimax rotation to analyze the main component showed a correlation (r = 0.13) between the two subscales
	7- In the method section, the authors wrote the patients entered to study which had an intermediate score of psychological flexibility and an intermediate score of Emotion Regulation. But in inclusion criteria, it was not mentioned. Why patients with a high score and low score on the questionnaire were excluded?	Based on the recommendation of the referee, it was considered as one of the inclusion criteria and was corrected in the text. Accordingly, none of the 69 patients, who met the inclusion and exclusion criteria, were excluded from the study. However, according to the sample size required for group interventions, 30 patients were selected based on their Medium downward score of psychological flexibility and emotion regulation to participate in the study and were randomly divided into two groups of 15 controls and 15 intervention subjects

	8- Figure 1 should be corrected: the researchers selected 30 patients according to inclusion and exclusion criteria not randomly! But randomly allocated them into two groups. The number of dropped out patients must be mentioned.	The sampling method in this study was purposive and based on inclusion and exclusion criteria and then it was randomly divided into experimental and control groups which were corrected in Figure 1. All selected patients cooperated until the end of the study and none of them were dropped out of the study. This case was mentioned in the article on the recommendation of the referee.
	9- Demographic Data about both groups must be presented in table 2.	Demographic Data of both groups was presented in table 2.

2 Revision 1

1 comment · 1 Dec 2020

Editor-in-Chief

MINOR REVISION 1 Dec 2020

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.

Thank you for the useful and constructive comments concerning our manuscript entitled **"The Effect of Acceptance and Commitment Therapy on Psychological Flexibility and Emotional Regulation in Patients with Spinal Cord Injuries: A Randomized Controlled Trial".** We have studied your comments carefully and made a major correction which we hope meet with your approval. We answer your questions or comments in the following table.

(Associate Editor's Comments**:**

Associate Editor 1:):

	Points	**Response**
	Dear Author, Unfortunately you have not done all of the requested revisions. according to guideline of IJPBS,Keywords should be taken from those recommended by the US National Library of Medicine`s Medical Subject Headings(MESH) browser list. You can use the following address: *http://www.ncbi.nlm.nih.gov/mesh/*" and they should be ordered according to alphabet. Some keywords are not selected from MESH	Keywords were selected from those recommended by the US National Library of Medicine`s Medical Subject Headings(MESH) and Corrected as follows in the keywords section: Acceptance and Commitment Therapy, Emotional Regulation, Spinal Cord injuries

3 Revision 2

1 comment · 30 Jan 2021

Editor-in-Chief

ACCEPT 30 Jan 2021

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 be finalized only 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.