

Research Paper

Comparison of None-attendance Interventions Methods of Standardized, Cognitive Bias Modification, Cognitive Bias Modification Based on Self-generation and Cognitive-Behavior Training on Depressed Students



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ABSTRACT

Objectives A recent method that modifies the intrusive memories is cognitive bias modification. This study aimed to investigate and compare the three none-attendance therapies of standardized cognitive bias modification, cognitive bias modification based self-generation and cognitive-behavior training.

Methods According to inclusion and exclusion criteria, a total of 51 participants were selected via purposive sampling method. Then, they were randomly assigned to either of three groups: standardized cognitive bias modification, self-generation, and cognitive-behavioral training groups. Questionnaires and scales related to mood, interpretation bias, memory bias, positive and negative emotions, and inappropriate attitudes were used as the research instruments.

Results Results indicate that all three treatment methods are effective ($P < 0.01$). But, the three groups had no significant differences in mood-related variables (depression signs, mood, positive and negative affect). Regarding the cognitive variables (interpretation bias, positive and negative memory bias, dysfunctional attitudes), interventions were effective, and the groups exhibited significant differences ($P < 0.01$).

Conclusion Standardized cognitive bias modification and self-generation through new 4-week procedures serve as effective methods for attenuating depression while improving the states of interpretation bias, inappropriate attitude, and memory.

Extended Abstract

1. Introduction

Recent models of cognitive interaction and emotion stress the fundamental role of cognitive processes in emotion and mood regulation. Researchers have suggested that the initial

abnormal response to a stressor like a stressful life event does not identify the people vulnerable to depression, but the inability to regulate the duration and severity of the negative emotion as its consequence [1].

A method recently proven useful in modifying the evaluation of disturbing memories is the computerized Cognitive Bias Modification (CBM) [2]. The modification of cogni-

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tive bias has various types, one of which is to induce a bias in selective interpretation that raises the possibility of modification of such bias [3-5]. The initial version of CBM-I was invented by Matthews et al [6]. The purpose of CBM-I is usually to change negative interpretations automatically into benign or positive alternatives [4].

The CBM-I motivates people to restrict ambiguous potential interpretations frequently in a particular (positive or negative) direction, which can make the interpretation of new vague information biased over time and due to habit [7]. For example, one CBM-I method is to expose people to a series of vague scenarios requiring the individuals to complete the part of an incomplete word at the end of each text with a negative or positive approach repeatedly and continuously to remove ambiguity from these scenarios [4]. Thus, the purpose of this study was to compare the effectiveness of standardized cognitive bias modification, cognitive bias modification based on self-generation and cognitive-behavioral training.

2. Method

The participants were 51 undergraduate students (12 boys and 39 girls) of Hormozgan University. Their age ranged from 18 to 22 years with an average of 19.55 and a standard deviation of 1.04. Simple random sampling method was used to select the sample. In the first stage, 300 undergraduate students of Hormozgan University studying in the academic year 2015-2016 were selected and Beck Depression Inventory Second Edition (BDI-II) was used for them. The students whose grades in the questionnaire were equal to or higher than the cut off score point (14), who were 74 people, were selected for the next stage of the study. In the second stage, using a diagnostic interview conducted by the researcher and according to inclusion criteria, withdrawal and agreement of the participants, 60 people were selected in a purposive way for the final stage of the study.

After selecting the final sample, each participant was randomly assigned to one of the triple test conditions. Thus, there were 20 participants in each group making 60 people. However, as several participants did not attend the post-test stage to equalize the size of the groups, three individuals were randomly eliminated from each group. Hence, this research continued in the post-test and follow-up phase with 51 participants. The tools used were BDI-II, ambiguous scenario test, the Positive and Negative Affect Schedule (PANAS), memory bias scale, visual mood grading scale and dysfunctional attitude questionnaire.

3. Results

The results of covariance analysis showed no significant difference between the severity of depression among the subjects with the control of 88.7% of pre-test depression scores with post-test scores. There were no significant differences between the severities of depression of the subjects in terms of group membership. In addition, by controlling 94.3% pre-test and follow up scores, it is clear that there is no significant difference between the scores or severity of depression symptoms among the participants in terms of group membership ($P < 0.05$). However, no significant differences were found between the inefficient attitudes.

After performing pair comparisons, a significant difference was found between the three groups, and as the mean of self-generation group was higher in interpretive-bias variables, positive and negative memory bias, positive imagery groups and cognitive-behavioral training, suggest that this intervention has been more effective.

4. Discussion

According to self-perception theory [23] and the results of Hopit et al. [24], the authors assumption was that self-generation is more effective than standard CBM-I. However, the results of the study showed no significant differences between the three interventions regarding mood characteristics (mood, affect and depression symptoms). Based on another part of the research, concerning the interpretive bias variable, positive imagery intervention in the post-test phase has been more effective than the rest of the interventions. After that is the self-generation intervention able to increase the interpretation bias of the participants in a positive way.

Nevertheless, in the follow-up, self-generation intervention has been able to sustain positive interpretation bias better than other interventions. Considering positive memory bias, according to the research results, the intervention of cognitive bias modification in the post-test phase was more effective than the other two interventions. According to another result, positive imagery and self-generation techniques have been able to act more effectively than cognitive-behavioral methods in reducing the negative memory bias. A possible explanation is that a direct challenge to thoughts may lead to resistance, whereas they can be more effective. In addition, many researchers [25] believe that mental imagery is more successful than verbal thoughts in changing attitudes and creations or emotions. Theoretically, it seems possible that it is possible that emotional systems are particularly sensitive to mental imagery, since other rep-

resentation systems, such as language, are more likely to evolve than early systems such as fear. Overall, these results are in line with the assumptions of research and results by Hoppit et al. [24], Torkan et al. [8] and self-perception theory [23].

Ethical Considerations

Compliance with ethical guidelines

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008.

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Conflict of interest

The authors declared no conflict of interest.

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