



Online Behavioral Activation Therapy on Depression and Alexithymia in Infertile Women During the COVID-19 Pandemic Lockdown

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Abstract

Background & Aims: In light of the coronavirus disease 19 (COVID-19) pandemic, it is important to have mental health interventions that are easily integrated during crises. However, the present study has been conducted on the effectiveness of group behavioral activation therapy (BAT) on depression and alexithymia in depressive infertile women during the COVID-19 lockdown.

Materials and Methods: In this quasi-experimental pre-test-post-test design with a control group, 28 women undergoing infertility care with depressive disorders were selected following initial clinical evaluations and research conditions. They were randomly divided into the BAT (n=14), and control (n=14) groups. The experimental group received six sessions of weekly treatment (1.5 hours) based on BAT. All the participants completed the Beck Depression Inventory (BDI) and the Alexithymia Scale, in the pre-test and post-test stages.

Results: The results revealed that BA-based weekly treatment reduced depression and alexithymia among women undergoing infertility care during the COVID-19 lockdown ($P>0.05$).

Conclusion: Overall, an online BA program might be proven to be useful during crises such as a pandemic. In this study, BA treatment had a positive impact on depression and alexithymia among women receiving infertility treatment during the COVID-19 lockdown.

Keywords: Behavior, Depression, Affective symptoms, Infertility, Female, Alexithymia

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1. Introduction

As a result of the coronavirus disease 19 (COVID-19) pandemic, most aspects of society are experiencing unprecedented disruption. Researchers reported a marked increase in depression and anxiety [1,2], which has been shown to further aggravate physical health conditions [3]. Additionally, the infection of COVID-19 itself has been associated with psychiatric sequelae, which could result in a greater incidence of mental illnesses [4,5]. According to the World Health Organization, one out of every four couples in developing nations experiences infertility. The fertility rate in India has declined from 3.9 in 1990 to 2.3 in 2019. The number of infertile couples is estimated at 22-23 million. Physicians in reproductive medicine and their patients face new challenges as the world faces a pandemic with enormous casualties. Considering that infected people will not demonstrate any symptoms and community transmission will be rapid, patients should be

informed that frequent hospital visits can be hazardous to them and their families. Accordingly, this group of people is also forced to administer their medical treatment at home [6].

With the extended prevision of the COVID-19 pandemic emergency, as well as, the current recommendations to suspend assisted reproductive technique (ART) treatments, most patients are anxious and scared of the real possibility of compromising even further their chances of pregnancy. The great dilemma for fertility centers is to establish safe conditions to be back to support couples without confronting local government regulations [7]. In France, one in eight couples encounters difficulties to conceive. Many people who are experiencing infertility feel burdened with the diagnosis and treatment of the condition. Couples who are infertile are more likely to suffer from psychosocial problems, especially anxiety and depression. The frequency of these symptoms appears to



be higher than in the general population, and women are more affected than men [8]. Infertility is already a major life crisis that threatens important life goals and can accompany a variety of psychological disorders; therefore, it is inevitable that the pandemic would add to the burdens on people coping with infertility. Infertility disrupts people's developmental trajectory into adulthood and in other domains such as personal, couple, or social, thus they are likely to be vulnerable to additional stress [9].

The emotional impact of infertility is more severe during a global pandemic according to research. Trinchant et al argue that "reproductive rights" are human rights, and their denial to those facing infertility during the initial COVID-19 outbreak has increased the amount of emotional distress and anxiety, particularly for those with a long history of infertility [10]. According to research data, approximately two-thirds of patients waiting for the resumption of ART treatment expressed a desire to proceed with their treatment during the pandemic [11], while half of the respondents to another study reported clinically significant symptoms of depression due to the suspension of ART treatment [12]. In addition to feeling powerless, patients were also concerned about the prospect of further compromising their chances of getting pregnant because of deteriorating egg reserves and quality, in particular for older individuals and couples [13].

During societal crises, it is critically important to experimentally examine what interventions are most appropriate. It has been suggested that cognitive-behavioral therapy (CBT) should be provided more widely [8]; however, this intervention is expensive and not readily available everywhere. In recent studies, behavioral activation was found to be as effective as CBT, but more cost-effective since it could be delivered by junior mental health workers with a shorter training period [14]. Behavioral analysis helps patients examine their daily behaviors and find the right balance between routine, pleasurable, and necessary activities, which may be particularly valuable during a time of major lifestyle changes [5]. Hence, the psychological impact of the COVID-19 pandemic on infertile patients should not be underestimated, and specific psychological care should be planned during this time. This article contributes to the existing research on the mental health of fertility patients during this time and identifies the utility of online fertility forums as platforms for additional social support. Based on the above-mentioned information, the study examined the effects of behavioral activation therapy (BAT) on depression and alexithymia among infertile women during the COVID-19 lockdown.

2. Materials and Methods

The current has a quasi-experimental design with a control group of 28 infertile women suffering from depression who were purposively selected in Tehran,

Iran, in January and March 2021. G-Power [15] was used to select the research sample. The sample size was determined by taking into account the sample loss percentage. Nonetheless, 7 out of 35 participants dropped out during the screening process, thus 28 women made up the final sample. Each eligible participant was randomly assigned to one of two groups of a BA intervention ($n = 14$) or a control group ($n = 14$). Women with infertility were diagnosed as depressed based on the Beck Depression Inventory-II (BDI-II) when they began the study and were waiting to restart ART treatment at the beginning of the pandemic. Participants were excluded from the study if they have a history of undergoing another psychological treatment, reporting suicidal thoughts, or having a diagnosis of psychosis, bipolar disorder, substance abuse, obsessive-compulsive disorder, or posttraumatic stress disorder (as assessed using Structured Clinical Interview for DSM-5), and missing two days of therapy. A researcher initially visited infertile women at the Royan Institute in Tehran who were waiting for their treatment to resume and expressed their desire to continue during the pandemic. After a detailed explanation of the study's purpose, the women with infertility qualified for the study were met face-to-face. An informed consent form was obtained from them. According to Lejuez et al [16], a brief BA treatment (Table 1) was administered in this study. The study intervention lasted for six weeks and was conducted by two psychology researchers who were trained (researchers involved in this study) via a video-communication service developed by Google (Google Meet). Participants initially attended an introductory 1.5-hour session that included psychoeducation, setting of goals, monitoring of baseline activity, and planning of the first week's activities. Participants then met each week for 30 minutes to discuss which activities they completed, solve problems, and make plans for the coming week (four meetings in general). After the study, the control group received materials about behavioral activation but did not receive any interventions. All meetings took place via Google Meet through a remote connection. As part of the interview process, participants were given a sociodemographic questionnaire, BDI-II, and Ahvaz Alexithymia Scale (AAS-26). The collected data were analyzed using SPSS, version 23. In addition to descriptive statistics, including the mean and standard deviation, the ANCOVA was employed to analyze the effects of BAT on depression and alexithymia among depressive infertile women during the COVID-19 lockdown. Levene's test was used for homogeneity. Finally, the Kolmogorov-Smirnov test was applied to determine the normality of the test, and a P value of less than 0.05 was defined to be statistically significant.

Research Tools

Structured Clinical Interview (for DSM-5): First et al [17]

Table 1. Content and Treatment Sessions

BAT
Session 1: Introduction, statement of the session rules, explanation of depression, explanation of the BA model, introduction and statement of goals, and the introduction of treatment logic
Session 2: Identification of alien behaviors and functional analysis, functional analysis of behaviors, and review of the previous session
Session 3: Functional analysis of behaviors and identification of stimuli that evoke and maintain behavior
Session 4: Revision over the previous session, functional analysis and strengthening of the effective coping methods, and identification of values and activities related to them.
Session 5: Functional analysis of behaviors and identification of stimuli that evoke and maintain behavior
Session 6: Content summarization and reviewing, and strengthening of the participants' activities to deal with depression

Note. BAT: Behavioral activation therapy.

Source. Lejuez et al [16].

recommended this interview. The Iranian version was evaluated by three professors of clinical psychology, and its reliability was found to be 0.95 [18]. According to the findings of the present study, this questionnaire has an internal consistency of 0.85.

BDI-II: Based on the cognitive theory of depression, the questionnaire includes 21 items to assess all domains of depression [19]. There are four options for each item. Answering each question reveals the individual's feelings and behavioral characteristics. The severity of symptoms is determined by the score assigned to each option. Scores range between 0 and 63. Since it assesses both depression incidence and severity, it can be used by individuals over 13 years of age. Low, mild, and moderate depression scores are in the range of 0-13, 14-19, and 20-28, respectively. Furthermore, $29 < \text{scores} < 63$ represent severe depression [19]. Rajabi and Karjo Kasmai calculated Cronbach's alpha coefficient to evaluate the reliability of the BDI-II. The obtained coefficients were 0.86, 0.84, and 0.87 for cognitive-affective factors, negative attitudes-somatic symptoms, and cognitive-affective factors (the first factor), respectively. In terms of correlation coefficients, the entire scale was 0.90 and 0.95 with respect to the first and second factors [20].

AAS-26: It was designed using the exploratory factor analysis [21] and the one-factor method with 26 factors, 0.40-factor loading, and Cronbach's alpha of 0.89. A reliability of 0.87 was found between the test and the follow-up. A total of four aspects were taken into consideration (from the most often to never). The validity of the Toronto Alexithymia Scale (TAS-20) was 0.81, and that of the Toronto test's triple subscales was 0.82, 0.75, and 0.72. For example, "never" is represented by 1, while "most often" is denoted by 4. According to Cronbach's alpha coefficient, the questionnaire had an alpha coefficient of 0.90.

3. Results

Based on the results (Table 2), in the BATD group, the educated subjects were about 32.14%. However, no significant variations were observed among the three groups ($\chi^2 = 1.132$, $P = 0.404$). According to Table 2, the

participants of the control group were in the age range of 26-35 years old (25%), and there was a significant difference among the three groups in terms of the most frequent age groups ($\chi^2 = 14.261$, $P = 0.017$).

The findings demonstrated a significant difference between the two groups with regard to depression and alexithymia in the pre-test (27.53 ± 7.77 and 34.73 ± 12.78) and post-test (11.60 ± 10.08 and 29.07 ± 14.67) scores, respectively (Table 3).

In the post-test, the depression and alexithymia scores of the experimental group (the group that received the behavioral activation intervention significantly differed from the depression and alexithymia scores in the control group (significantly lower than 0.05). Overall, observations indicated that the behavioral activation intervention affects the depression and alexithymia of infertile women with effect sizes 0.76 and 0.92, respectively (Table 4).

4. Discussion

In the present study, the BAT group was evaluated regarding depression and alexithymia in infertile

Table 2. Frequency of the Participants in the Three Research Groups

Variables	Group	BATD	Control	χ^2	P Value
Educational status	Under diploma	3	3	1.132	0.404
	Diploma	2	3		
	Academic degree	9	8		
Age group	18-25	4	4	14.261	0.017
	26-35	3	7		
	36-40	5	3		
	41-55	1	1		

Note. BAT: Behavioral activation therapy.

Table 3. Descriptive Statistics of Both Groups

Variables	Group	Pre-test	Post-test	P value
Depression	Behavioral activation	27.53 ± 7.77	11.60 ± 10.08	0.001
	Control	26.33 ± 7.29	28.60 ± 10.62	0.811
Alexithymia	Behavioral activation	34.73 ± 12.78	29.07 ± 14.67	0.003
	Control	27.53 ± 10.37	32.80 ± 12.36	0.078

Table 4. The Results of ANCOVA Between the Experimental and Control Groups in Terms of Depression and Alexithymia

Variables	Source of Change	MS	df	SSM	F	P value	Effect Size
Depression	Pre-test	0.02	1	0.02	0.16	0.691	0.00
	Group	11.3	1	11.3	89.6	0.000	0.76
	Error	3.4	27	0.12			
Alexithymia	Pre-test	0.06	1	0.06	1.3	0.256	0.04
	Group	15.1	1	15.1	339.4	0.000	0.92
	Error	1.2	27	.04			

Note. ANCOVA: Analysis of covariance; MS: Model sum of squares; df: Degree of freedom; SSM: Sum of squares; F: F-value.

women with depressed moods during the lockdown of COVID-19. The results represented a significant difference between the mean post-test depression and Alexithymia of the depressed infertile women in the BAT group and the control group. The findings of this research are in accordance with those of Richards et al [14], Singla et al [22], and Ruzickova et al [23].

In their study, Richards et al recruited 440 participants (n = 221 and n = 219 in BA and CBT groups, respectively) and found a significant difference in the mean intervention between the two groups. In a COVID-19 pandemic context, BA was proven to be more effective than CBT and facilitated social connections among pregnant women and their families experiencing depression and anxiety [14]. During a confluence of significant global events in 2020, Singha et al identified the feasibility of implementing a brief BA model via telemedicine to support perinatal populations. During the BA, participants stated that they coped with pandemic-related symptoms, provided support, generated social connections, used creative problem-solving techniques, and found solutions to creative problems [22].

Likewise, Ruzickova et al examined the effects of non-specially-administered BA on mild to moderate depression in 68 UK participants. In addition to self-reported data on mood and disruptions of COVID-related functioning, an objective measure of emotional cognition was collected before and after the intervention as well. A significant decrease in depression, anxiety, and anhedonia was observed in the BA group following the intervention, as well as increased social activity and support. Furthermore, BA reduced negative affective bias on several measures of the facial emotion recognition task, which later resulted in positive effects on therapy. In practice, participants reported that BA was highly effective in reducing negative affectivity. Depressive people are prone to use avoidant coping strategies as a result of this approach; therefore, this approach is effective in reducing cognitive-behavioral avoidance [23].

The theory also emphasizes the need to educate clients on how to deal with chaotic behavioral patterns. The behavioral activation method helps therapists combat avoidance by providing structured activations and problem-solving techniques. During this treatment, the therapist identifies the patient's avoidance patterns and

uses alternative coping strategies [24]. The goal of BAT is to allow individuals to identify their incorrect cognitive strategies and problems, and coordinate them to stay calm when learning calming techniques. As a result of such therapy, patients may become more positive about their condition and have a better sense of themselves and their lifestyle [25,26].

Thus, changing unconscious bias can result in positive changes in conscious mood, which indicates a mechanistic role in affective cognition. The effects of these treatments were mainly documented in pharmacological treatments for depression [27], although there was some evidence for psychological treatments [28]. According to Ruzickova et al, the intervention led to significant differences in depression, activation, and recognition of facial expressions. Further, anxiety, distress, and disruptions associated with this condition decreased with COVID and automatic negative thoughts [23].

In this study, the analysis was limited due to the limited sample size of infertile women undergoing ART. Hence, the results are not generalizable to cultural and social grounds. By controlling variables such as age, gender, and educational level, we attempted to prevent the interaction of variables that would limit the generalizability of our findings. As a result, certain features of infertility, including duration, were not controlled, which is an important limitation of this study. Further comparisons should be possible in future clinical trials by including additional drug therapy and placebo groups in addition to the experimental and control groups. This research should be performed in conjunction with other methods being evaluated at the same time.

Conclusion

In general, the findings suggest that online BA could be an effective intervention to disseminate during a public health emergency when effective treatment is most needed. The results revealed that group psychotherapy using online BAT was effective in reducing depression and alexithymia among infertile women suffering from depressed moods during the COVID-19 pandemic lockdown.

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Conflict of Interests

The author declared no potential conflict of interests with respect to the research, authorship, and/or publication of this article.

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References

- Ettman CK, Abdalla SM, Cohen GH, Sampson L, Vivier PM, Galea S. Prevalence of depression symptoms in US adults before and during the COVID-19 pandemic. *JAMA Netw Open*. 2020;3(9):e2019686. doi: [10.1001/jamanetworkopen.2020.19686](https://doi.org/10.1001/jamanetworkopen.2020.19686).
- Winkler P, Formanek T, Mlada K, Kagstrom A, Mohrova Z, Mohr P, et al. Increase in prevalence of current mental disorders in the context of COVID-19: analysis of repeated nationwide cross-sectional surveys. *Epidemiol Psychiatr Sci*. 2020;29:e173. doi: [10.1017/s2045796020000888](https://doi.org/10.1017/s2045796020000888).
- Shevlin M, Nolan E, Owczarek M, McBride O, Murphy J, Gibson Miller J, et al. COVID-19-related anxiety predicts somatic symptoms in the UK population. *Br J Health Psychol*. 2020;25(4):875-82. doi: [10.1111/bjhp.12430](https://doi.org/10.1111/bjhp.12430).
- Taquet M, Luciano S, Geddes JR, Harrison PJ. Bidirectional associations between COVID-19 and psychiatric disorder: retrospective cohort studies of 62 354 COVID-19 cases in the USA. *Lancet Psychiatry*. 2021;8(2):130-40. doi: [10.1016/s2215-0366\(20\)30462-4](https://doi.org/10.1016/s2215-0366(20)30462-4).
- Ruzickova T, Carson J, Argabright S, Gillespie A, Guinea C, Pearse A, et al. Online behavioural activation during the COVID-19 pandemic decreases depression and negative affective bias. *Psychol Med*. 2021;1-18. doi: [10.1017/s0033291721002142](https://doi.org/10.1017/s0033291721002142).
- Arumugam SC, Manivasakan J, Habeebullah S. Management of infertility—recommendations in the COVID-19 era. *J Basic Clin Appl Health Sci*. 2020;3(2):53-5. doi: [10.5005/jp-journals-10082-02253](https://doi.org/10.5005/jp-journals-10082-02253).
- de Souza M, Nakagawa H, Taitson PF, Cordts EB, Antunes RA. Management of ART and COVID-19: infertility in times of pandemic. What now? *JBRA Assist Reprod*. 2020;24(3):231-2. doi: [10.5935/1518-0557.20200031](https://doi.org/10.5935/1518-0557.20200031).
- da Silva Lopes BC, Jaspal R. Understanding the mental health burden of COVID-19 in the United Kingdom. *Psychol Trauma*. 2020;12(5):465-7. doi: [10.1037/tra0000632](https://doi.org/10.1037/tra0000632).
- Biviá-Roig G, Boldó-Roda A, Blasco-Sanz R, Serrano-Raya L, DelaFuente-Díez E, Múzquiz-Barberá P, et al. Impact of the COVID-19 pandemic on the lifestyles and quality of life of women with fertility problems: a cross-sectional study. *Front Public Health*. 2021;9:686115. doi: [10.3389/fpubh.2021.686115](https://doi.org/10.3389/fpubh.2021.686115).
- Trinchant RM, Cruz M, Marqueta J, Requena A. Infertility and reproductive rights after the COVID-19 pandemic. *Reprod Biomed Online*. 2020;41(2):151-3. doi: [10.1016/j.rbmo.2020.05.007](https://doi.org/10.1016/j.rbmo.2020.05.007).
- Esposito V, Rania E, Lico D, Pedri S, Fiorenza A, Strati MF, et al. Influence of COVID-19 pandemic on the psychological status of infertile couples. *Eur J Obstet Gynecol Reprod Biol*. 2020;253:148-53. doi: [10.1016/j.ejogrb.2020.08.025](https://doi.org/10.1016/j.ejogrb.2020.08.025).
- Gordon JL, Balsom AA. The psychological impact of fertility treatment suspensions during the COVID-19 pandemic. *PLoS One*. 2020;15(9):e0239253. doi: [10.1371/journal.pone.0239253](https://doi.org/10.1371/journal.pone.0239253).
- Barra F, La Rosa VL, Vitale SG, Commodari E, Altieri M, Scala C, et al. Psychological status of infertile patients who had in vitro fertilization treatment interrupted or postponed due to COVID-19 pandemic: a cross-sectional study. *J Psychosom Obstet Gynaecol*. 2022;43(2):145-52. doi: [10.1080/0167482x.2020.1853095](https://doi.org/10.1080/0167482x.2020.1853095).
- Richards DA, Ekers D, McMillan D, Taylor RS, Byford S, Warren FC, et al. Cost and Outcome of Behavioural Activation versus Cognitive Behavioural Therapy for Depression (COBRA): a randomised, controlled, non-inferiority trial. *Lancet*. 2016;388(10047):871-80. doi: [10.1016/s0140-6736\(16\)31140-0](https://doi.org/10.1016/s0140-6736(16)31140-0).
- Waller KG, Shaw RW. Endometriosis, pelvic pain, and psychological functioning. *Fertil Steril*. 1995;63(4):796-800. doi: [10.1016/s0015-0282\(16\)57484-6](https://doi.org/10.1016/s0015-0282(16)57484-6).
- Lejuez CW, Hopko DR, Hopko SD. A brief behavioral activation treatment for depression. *Treatment manual*. *Behav Modif*. 2001;25(2):255-86. doi: [10.1177/0145445501252005](https://doi.org/10.1177/0145445501252005).
- First MB, Spitzer RL, Gibbon M, Williams JB. *User's Guide for the Structured Clinical Interview for DSM-IV Axis I Disorders SCID-I: Clinician Version*. Washington, DC: American Psychiatric Association; 1997.
- Sharifi V, Assadi SM, Mohammadi MR, Amini H, Kaviani H, Semnani Y, et al. A Persian translation of the structured clinical interview for diagnostic and statistical manual of mental disorders, fourth edition: psychometric properties. *Compr Psychiatry*. 2009;50(1):86-91. doi: [10.1016/j.comppsy.2008.04.004](https://doi.org/10.1016/j.comppsy.2008.04.004).
- Strunk KK, Lane FC. *The Beck Depression Inventory, Second Edition (BDI-II): A Cross-Sample Structural Analysis*. *Meas Eval Couns Dev*. 2016. doi: [10.1177/0748175616664010](https://doi.org/10.1177/0748175616664010).
- Rajabi G, Karjo Kasmai S. Psychometric properties of a Persian-language version of the beck depression inventory—second edition (BDI-II-Persian). *Educational Measurement*. 2013;3(10):139-57. [Persian].
- Makvandi B, Haydarei AR, Shehni Yailagh M, Najarian B, Askery P. Construction and validation of a scale for the measurement of alexithymia in university student. *J Am Sci*. 2011;7(12):325-9.
- Singla DR, Hossain S, Ravitz P, Schiller CE, Andrejek N, Kim J, et al. Adapting behavioral activation for perinatal depression and anxiety in response to the COVID-19 pandemic and racial injustice. *J Affect Disord*. 2022;299:180-7. doi: [10.1016/j.jad.2021.12.006](https://doi.org/10.1016/j.jad.2021.12.006).
- Zabihi S, Lemmel FK, Orgeta V. Behavioural activation for depression in informal caregivers: A systematic review and meta-analysis of randomised controlled clinical trials. *Journal of Affective Disorders*. 2020;274:1173-1183. doi: [10.1016/j.jad.2020.03.124](https://doi.org/10.1016/j.jad.2020.03.124).
- Harmer CJ, Duman RS, Cowen PJ. How do antidepressants work? New perspectives for refining future treatment approaches. *Lancet Psychiatry*. 2017;4(5):409-18. doi: [10.1016/s2215-0366\(17\)30015-9](https://doi.org/10.1016/s2215-0366(17)30015-9).
- Yılmaz O, Mırçık AB, Kunduz M, Çombaş M, Öztürk A, Deveci E, et al. Effects of cognitive behavioral therapy, existential psychotherapy and supportive counselling on facial emotion recognition among patients with mild or moderate depression. *Psychiatry Investig*. 2019;16(7):491-503. doi: [10.30773/pi.2019.03.14](https://doi.org/10.30773/pi.2019.03.14).

26. Shareh H. Effectiveness of behavioral activation group therapy on attributional styles, depression, and quality of life in women with breast cancer. *Journal of Fundamentals of Mental Health*. 2016;18(4):179-88. doi: [10.22038/jfmh.2016.7097](https://doi.org/10.22038/jfmh.2016.7097). [Persian].
27. Lejuez CW, Hopko DR, Acierno R, Daughters SB, Pagoto SL. Ten year revision of the brief behavioral activation treatment for depression: revised treatment manual. *Behav Modif*. 2011;35(2):111-61. doi: [10.1177/0145445510390929](https://doi.org/10.1177/0145445510390929).
28. Dimidjian S, Barrera M Jr, Martell C, Muñoz RF, Lewinsohn PM. The origins and current status of behavioral activation treatments for depression. *Annu Rev Clin Psychol*. 2011;7:1-38. doi: [10.1146/annurev-clinpsy-032210-104535](https://doi.org/10.1146/annurev-clinpsy-032210-104535).

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