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The Effect of Emotion Regulation Training Based on Dialectic Behavior Therapy on Aggression and Quality of Life in Ibn-Sina Hospital Staff, Mashhad, Iran

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Abstract

Background: Emotion dysregulation is related to low quality of life (QOL) and increased aggression..

Aim: The present study was conducted with aim to investigate the effect of emotion regulation training based on dialectic behavior therapy (DBT) on aggression and QOL in Ibn-Sina Hospital staff in Mashhad, Iran.

Method: This non-randomized quasi-experimental study with a pretest-posttest design was performed in Ibn-Sina Hospital, Mashhad, Iran for 12 months since July 2020. The hospital staff with the highest aggression level based on Buss and Perry's aggression questionnaire were divided into experimental and control groups. The quality of life short form (SF-36), Bass and Perry aggression questionnaires were filled out pre-test, post-test, and after one month of educational intervention. Experimental group received 8-session emotion regulation training. The data were analyzed by Statistical Package for Social Sciences (SPSS) software (version 22). $p<0.05$ was considered statistically significant.

Results: There was a significant difference between the two groups in change in role limitations due to emotional problems (from 164.0±95.22 to 220.5±68.66), energy and vitality (from 213.89±66.04 to 240.56±50.25), and social functioning (from 115.97±42.32 to 131.94±31.97) dimensions of SF-36, and hostility domain (from 19.42±6.34 to 18.25±5.64) of the Bass and Perry aggression questionnaires at different periods ($p<0.05$). These dimensions significantly changed only in the experimental group. The effect of DBT intervention on the social functioning dimension remained significant during the one-month follow-up.

Implications for Practice: As the findings of this study revealed, comprehensive intervention is needed to improve all domains of the QOL to reduce aggression in hospital staff.

Keywords: Dialectical behavior therapy, Emotional regulations, Emotions, Quality of life

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Introduction

Feelings and emotions affect individual behavioral responses to environmental effects. Regulating emotions and feelings are necessary in the daily life of an individual both at work and home (1). Some patterns of lack of emotion regulation may induce functional disorders. Emotional experience is evaluated and corrected during the process of emotion regulation. This procedure enables individuals to realize which emotional regulation should be presented in any specific emotional situation. The majority of emotional dysregulations happen when an individual fails to efficiently and timely regulate emotions which results in negative attitudes and increased obsessive disorders. The complications caused by emotional dysregulation can be improved by psychological training (2).

Anxiety and aggression are important factors negatively affecting the quality of life and job satisfaction of healthcare providers, especially those working in stressful environments (3). The prevalence of aggression was reported between 8% and 76% among psychology ward nurses based on the results of the recent systematic reviews (4,5). A recent study from Iran reported that 17.8% of nurses face low levels of anxiety, 71.18% face moderate and 11.02% face severe levels of anxiety (6). Both aggression and anxiety are inversely correlated with job satisfaction and quality of life in healthcare providers (3,7). While it has been reported that the level of anxiety does not depend on some factors including marital status and work shift, the ward of work seems to have a direct effect on the level of anxiety and aggression among healthcare providers (6). Specific groups of healthcare providers including nurses dealing with psychiatric patients experience increased levels of trait anxiety; it has been demonstrated that these nurses face greater levels of anxiety when facing verbal and physical aggression rather than physical aggression alone (8).

There are various non-pharmaceutical methods, including Cognitive behavioral therapy (CBT), Dialectic behavior therapy (DBT), different relaxation training programs, mindfulness techniques, and problem-solving therapies for regulating emotions (9,10). DBT is a subset of CBT but emphasizes more on the emotional and social aspects of therapy (11). DBT is a new psychological treatment method that has been proposed for emotion regulation after its success in the management of depression and borderline personality disorders (9, 12, 13). Distress tolerance, emotional regulation, and interpersonal efficacy training based on DBT are successful in the management of depressive symptoms (14). DBT utilizes change-based cognitive-behavioral therapy along with acceptance-based methods in the form of group therapy (15). The sessions of this technique mainly comprise three dimensions based on the aim of educators. These training dimensions include mindfulness, emotion regulation, and distress tolerance. Mindfulness training includes familiarization with logical, emotional, and autonomous mental states. Emotion regulation training includes understanding the definition of emotion and familiarization with the pattern of identifying emotions. Further, DBT training includes learning harm reduction skills against negative emotions. Finally, DBT sessions provide education on crisis survival skills and distress tolerance, including distraction and relaxation (16). This type of therapy was previously found effective in reducing the emotional dimension of aggression in adolescents (16). It was also effective in improving quality of life (QOL) in individuals with bipolar disorder through reducing impulsivity (17).

It was previously reported that mental health staff are prone to aggression and aggression affecting their QOL (18-20). Considering the previously reported effects of DBT on aggression and QOL, it is hypothesized that emotion regulation training through DBT might be effective in reducing aggression and improving the QOL of mental health staff. Therefore, the present study was performed with aim to evaluate the effects of emotion regulation training based on DBT on aggression and QOL of staff in Ibn Sina Hospital, Mashhad, Iran.

Methods

This non-randomized quasi-experimental study was conducted in 2020-2021 at Ibn-Sina Hospital, a tertiary mental hospital in Mashhad, Iran. Participants were recruited based on announcements distributed in the hospital. The inclusion criteria were being hospital staff, having at least secondary education, and willingness to participate in the study by signing the informed consent. Exclusion criteria were experiencing acute stress in the past 6 months (including death of spouse, divorce, imprisonment, death of a close relative, recent illness or injury, marriage, job loss, or retirement), history of acute psychological disorder in the past 3 months (including major psychotic disorders, bipolar disorder, major depressive disorder, or autism), receiving psychological medications in the

past 3 months, participation in similar therapies in the past year or during the study period, diagnosis of psychological disorder during the study period, and not participating or cooperating in the DBT sessions. Individuals with the highest total score in Buss and Perry's aggression questionnaire were included in the study. The sample size was determined based on the change in the mean scores of QOL dimensions in a previous study (21) considering the type 1 error, type 2 error, and dropout rate of 0.05, 0.02, and 0.1, respectively. The calculated sample size based on the anxiety and aggression of nurses (6) was calculated as 36 participants in each group and the sample size based on the QOL questionnaire was calculated as 38 participants in each group, therefore, the greater sample size was considered.

The tools used in this study included a demographic questionnaire, the quality of life questionnaire short form-36 (SF-36), and the Bass and Perry aggression questionnaire. The quality of life short form (SF-36) is a 36-item self-report questionnaire composing 8 dimensions, including physical functioning, bodily pain, role-physical, general health, vitality, social functioning, role-emotional and mental health. Furthermore, SF-36 provides two summary scores including physical component summary (PCS) and mental component summary (MCS). The scores range from 26 to 130 with higher scores indicating better health status (22). The Persian translation of the SF-36 questionnaire has been previously validated on the Iranian population and the internal consistency coefficient for its dimensions ranged from 0.70 and 0.85 (23).

The Buss and Perry's aggression questionnaire developed in 1992 composed 29 items that evaluate aggression in four domains, including physical aggression, verbal aggression, and anger and hostility (24). The Persian translation of the questionnaire was validated on 429 university students and the reliability coefficient was reported as 0.78 (25). The study participants were selected from those with the highest total scores in Buss and Perry's aggression questionnaire. A demographic questionnaire was filled out by all the participants at the beginning of the study. The SF-36 and Bass and Perry aggression questionnaires were filled for all participants at baseline, after the 8^{th} session of the intervention (week 4), and one month after the end of the intervention session. All participants regardless of the allocation group answered the questionnaires at the designated time point.

Participants filled out the demographic, SF-36, and Bass and Perry aggression questionnaire at baseline and then were divided into experimental and control groups. The experimental group received intervention based on DBT, while the control group did not receive any intervention. Since the study was performed during the coronavirus 2019 pandemic, the intervention sessions were performed through a compact disk (CD), online education, and data sharing on social media (WhatsApp). Each session was recorded on a CD and included homework at the end of the CD. In the next session, CD was only provided to the participants if the previous session homework was completed. The homework was collected either in person or through WhatsApp. The researcher created the WhatsApp channel. If the participants in the experiment group had any questions, the researcher was informed through WhatsApp and the response was sent back to the participant through the channel. The intervention included 8 sessions. Each session lasted for 45 minutes twice per week. A psychiatry resident prepared the education material under the supervision of two university lecturers. A summary of the DBT session topics is presented in Table 1.

Table 1. Topics of DBT sessions

Session	Topic
1	Familiarization with the definition of emotion, thoughts, and behavior and their relationship Defining emotional regulation skills and their mechanism of action by providing examples and exercises
2	Familiarization with coping thoughts and strategies, and overwhelming emotions by providing examples and exercises
3	Training harms somatic and emotional reduction against overwhelming emotions by providing examples and exercises
4	Training overcoming barriers to healthy emotions and developing new and effective coping strategies by providing examples and exercises
5	Training mindful breathing and thought-emotion defusion
6	Familiarization with mindfulness and a wise mind
7	Familiarization with fundamental concepts in efficient communication
8	Training assertiveness skills and assertiveness listening

The data were analyzed by Statistical Package for Social Sciences (SPSS) software (version 22). The Kolmogorov-Smirnov test was used to evaluate the normality of continuous variables. Since all the variables were normally distributed, mean and standard deviation were used to describe continuous variables. Categorical variables were described using frequency and percentage. The chi-square test was performed to compare the distribution pattern of the categorical variables between the two groups. The repeated measures analysis of variance with Bonferroni correction was used to compare the variables between the intervention and control groups over the study duration by reporting time effect and intergroup comparison results for variables with significant time*group interactions. A pairwise comparison was performed using Bonferroni correction. $p<0.05$ was considered statistically significant.

Ethical Consideration

This research was conducted with the permission of the Biomedical Research Ethics Committee of Mashhad University of Medical Sciences (IR.MUMS.Medical.REC.1398.265). The informed written consent was obtained from the participants after explaining of the study objectives. Also, all participants entered the study by their choice or left the research if they didn't want to continue.

Results

Of the 76 participants (38 in each group) who entered the study, 2 (5.3%) were excluded from the experimental group and data of 36 participants in the experimental and 38 in the control group were analyzed (Figure 1).

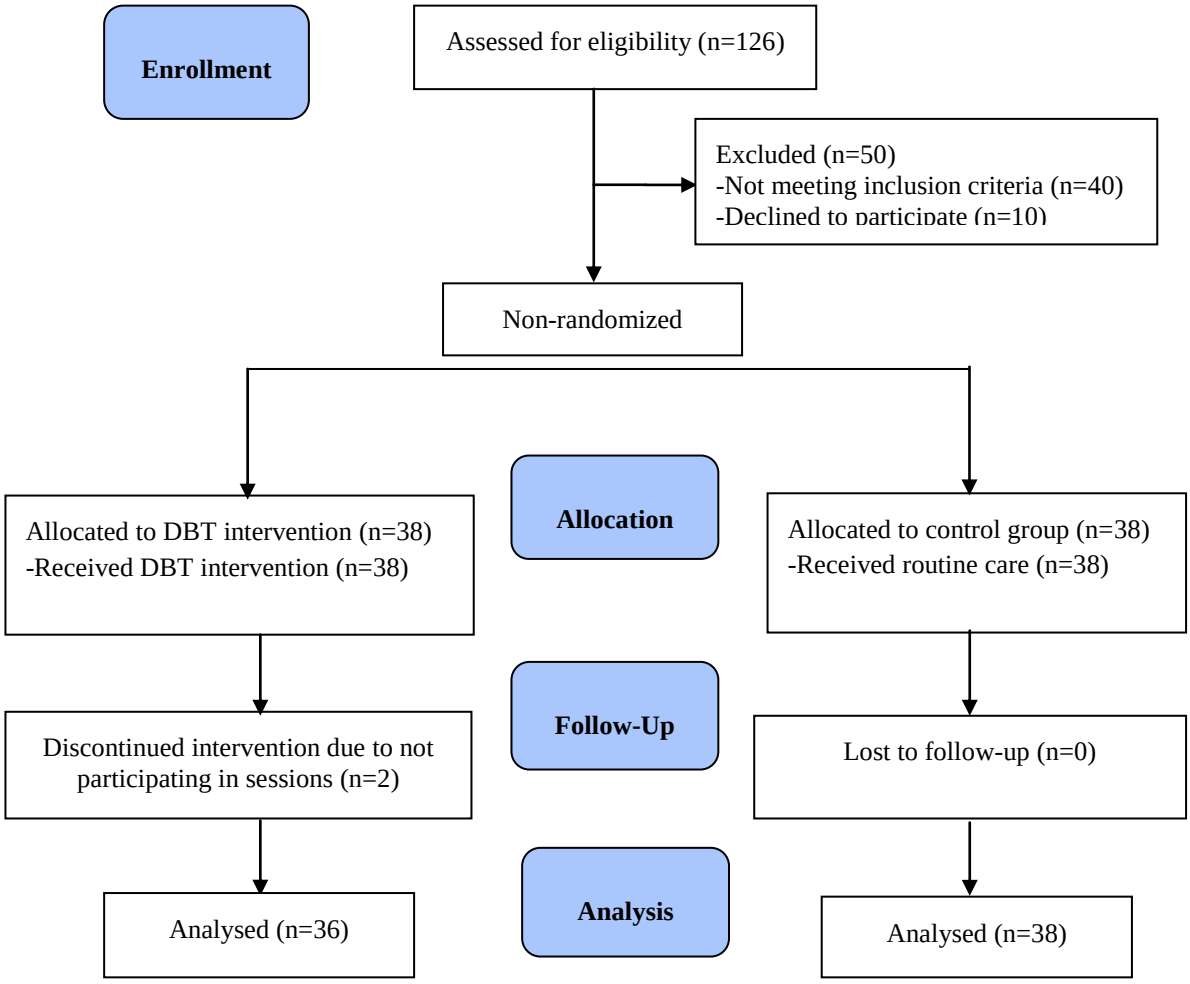

Figure 1. Flow diagram of the study process

Table 2. The demographic variables of the study groups at baseline

Variable	Experiment, N (%)	Control, N (%)	p-value*
Gender			
Male	9 (25.0%)	16 (42.1%)	>0.05
Female	27 (75.0%)	22 (57.9%)	
Occupation			
Employee	10 (7.8%)	7 (18.4%)	
Nurse	8 (22.2%)	7 (18.4%)	
Medical staff	1 (2.8%)	2 (5.4%)	>0.05
Psychiatric residents	8 (22.2%)	3 (7.9%)	
Security	4 (11.1%)	5(13.1%)	
Services	5 (13.9%)	5 (13.9%)	

*Chi-square test

Table 3. SF-36 and Bass and Perry aggression questionnaire domains scores in two groups

SF-36 domain	Group	Baseline	After intervention	Follow up	Time effect	Group effect	Time*group effect
Physical functioning	Experiment	840.28±170.64	844.44±160.70	844.44±160.70	0.300	0.484	0.09
	Control	822.37±163.45	821.05±163.01	821.05±163.01			
	p	>0.05	>0.05	>0.05			
Role limitation due to physical functioning	Experiment	274.29±117.18	344.44±365.57	297.22±105.52	0.200	0.575	0.300
	Control	258.71±111.52	288.57±96.32	288.59±94.95			
	p	>0.05	>0.05	>0.05			
Role limitation due to emotional functioning	Experiment	164.00±95.22**	220.59±68.66**	226.47±66.56**	<0.05*	0.991	<0.01*
	Control	200.00±120.89	183.87±109.84	186.67±93.71			
	p	>0.05	>0.05	>0.05			
Energy and vitality	Experiment	213.89±66.04**	240.56±50.25**	244.44±52.83**	<0.001*	0.432	<0.001*
	Control	239.47±82.98	241.02±83.83	239.21±84.35			
	p	>0.05	>0.05	>0.05			
Emotional health	Experiment	303.89±93.42	315.28±78.87	318.33±78.32	0.282	0.317	0.407
	Control	317.89±89.78	417.37±636.28	414.74±636.54			
	p	>0.05	>0.05	>0.05			
Social functioning	Experiment	115.97±42.32**	131.94±31.97**	131.94±31.97**	<0.0*	0.405	<0.00*
	Control	132.89±37.72	129.61±40.21	130.26±39.91			
	p	>0.05	>0.05	>0.05			
Pain	Experiment	127.92±38.76	136.94±35.30	132.50±34.07	0.660	0.056	0.420
	Control	150.92±47.69	148.29±40.44	148.95±39.73			
	P	<0.05*	>0.05	>0.05			
General Health	Experiment	385.69±86.73	388.47±82.95	388.47±82.95	0.867	0.916	0.225
	Control	359.87±106.15	356.32±104.67	357.24±104.93			
	p	>0.05	>0.05	>0.05			
Total SF-36 score	Experiment	2376.42±444.22**	2585.83±405.27**	2567.78±388.12**	0.214	0.435	0.490
	Control	2438.82±552.14	3116.97±4308.76	3146.08±4362.34			
	p	>0.05	>0.05	>0.05			
Physical aggression	Experiment	19.25±4.80**	18.03±4.33**	18.31±4.97**	0.257	0.817	0.205
	Control	18.55±6.53	18.11±6.96	20.74±14.64			
	p	>0.05	>0.05	>0.05			
Verbal aggression	Experiment	12.53±3.26	12.42±3.10	12.75±3.68	<0.0*	0.817	0.284
	Control	12.29±3.34	12.55±3.52	12.95±3.62			
	p	>0.05	>0.05	>0.05			
Anger	Experiment	17.17±5.50	17.11±5.85	17.08±5.74	0.501	0.947	0.616
	Control	18.37±6.11	18.32±6.06	17.87±6.39			
	p	>0.05	>0.05	>0.05			
Hostility	Experiment	19.42±6.34**	18.25±5.64**	18.14±5.58**	<0.0*	0.380	<0.00*
	Control	19.34±6.25	19.26±6.13	19.53±6.34			
	p	>0.05	>0.05	>0.05			
Total score	Experiment	68.50±14.04**	65.92±13.35**	65.78±13.21**	0.060	0.746	0.001*
	Control	68.32±18.17	68.53±17.89	69.43±18.73			
	p	>0.05	>0.05	>0.05			

*Significant effect; **Paired t-test

The results of Paired t-test indicated a significant difference in role limitation, energy and vitality, social functioning, total SF-36, physical aggression, score between baseline and after intervention

and follow up (p<0.01). There was a significant difference in social functioning (p<0.001) and physical aggression score (p<0.01) after intervention and follow up. The mean age of the participants in the experimental and control groups was 37.58±6.93 and 37.79±7.07 years, respectively. There was no significant difference between the two groups in terms of age (p>0.05). Comparison of demographic variables between the two groups at baseline is presented in Table 2. There was no significant difference between the experimental and control groups in terms of gender and occupation (p>0.05).

The value of SF-36 domains at baseline and after the intervention and follow-up were compared between the experimental and control groups (Table 3). There was only a significant difference in pain scores between the study groups at baseline. There was a significant time and time×group effect for role limitation due to emotional function, energy, vitality; and social functioning, indicating an increasing trend for these domain scores in the experimental group during the study. Intergroup comparison showed that changes in role limitation due to emotional function, energy and vitality, social function, and total SF-36 scores increased significantly compared to baseline in the experimental group. The value of the Bass and Perry aggression questionnaire domains at baseline and after the intervention and follow-up were compared between the experimental and control groups (Table 3). There was a significant time effect for verbal aggression and hostility domain scores and a significant time×group effect for hostility and total scores.

Discussion

The findings of this study showed that the DBT intervention resulted in a significant change in the role limitation due to emotional function, energy vitality; and social function domains of the SF-36, while the change in the scores of the other SF-36 domains remained non-significant. The effects of DBT on the social function domain remained significant after one month from the intervention. Furthermore, DBT intervention caused a significant reduction in hostility score and total score of the Bass and Perry aggression questionnaire. The effects of emotion regulation based on DBT were previously compared with emotion regulation based on a gross process in reducing the emotional symptoms of students, including depression, anxiety, interpersonal sensitivity, and hostility. It was shown that the two interventions were successful; however, the effects of DBT on depressive symptoms were more durable compared to the effects of gross process intervention (26). Similar findings were reported in another study regarding the significant effect of DBT on depressive symptoms (27). In the present study, DBT reduced aggression, which was in contrast to the findings of the study by Salehi et al. (26). This difference in the findings might be related to the difference in the tools used in the studies. The findings of the present study in terms of aggression reduction of DBT were in line with the findings of a previous study on boy high school students (28).

The current study showed that DBT improved some domains of QOL in mental hospital staff. This finding was in line with the findings of a previous study that reported group therapy based on DBT by reducing impulsivity improved QOL in bipolar patients (17). In another study on women with borderline personality disorder, DBT intervention improved emotion regulation and QOL in the study population (29). Similar findings were observed in previous studies (30-34); however, these studies used different tools and were conducted on different populations. For instance, the study in 2018 showed that the DBT was successful in improving emotion regulation, positive and negative emotions, and hostile behavior, and could prevent self-harm in Iranian female students (13 to 16 years) (35). Although this study was conducted on younger participants compared to our study, its results were in line with the findings of the present study. One of the limitations of the present study was that the study was conducted on hospital staff in a defined age range. It is suggested that further studies be conducted on participants that are more representative of society in terms of age groups. Due to the possible differences in the efficacy of DBT on different geographical and cultural communities, it is suggested that similar studies evaluate the effects of DBT in other cultures and geographical regions. Moreover, the present study did not include some individual factors including literacy level, work experience, and having night shifts as effective factors in learning.

Implications for practice

Based on the findings of this study, emotion regulation training based on DBT can be used to improve aggression in the working population. Furthermore, it is suggested to design comprehensive

interventions rather than 8-session interventions to better control emotions and prevent aggression in mental hospital staff.

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Conflicts of interest
The authors declared no conflict of interest.

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Authors' Contributions
Negar Asgharipour: Conceptualization, Investigation, Methodology, Administration, Writing-review & editing, Supervision. Maedeh Kamrani: Conceptualization, Investigation, Formal Analysis, Writing-review & editing. Sara Parandeh: Investigation, Administration, Methodology, Formal Analysis, Writing-review & editing. All authors contributed to the writing of the manuscript and discussed on the manuscript.

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