



A Randomized Controlled Trial of Group Reality Therapy in Attention Deficit Hyperactivity Disorder and Oppositional Defiant Disorder in adolescents

Mahdiah Fatemi Nayeri ¹, Atefeh Soltanifar^{1,*}, Fatemeh Moharreri ¹ and Farzad Akbarzadeh ¹

¹Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

^{*}Psychiatry and Behavioral Sciences Research Center, Mashhad University Of Medical Sciences, Mashhad, Iran, Iran. Tel: +98-5117112540, Email: soltanifara@mums.ac.ir

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Abstract

Background: The non-pharmacological interventions for behavioral problems of adolescents diagnosed with attention deficit hyperactivity disorder (ADHD) and oppositional defiant disorder (ODD) are of great interest to researchers.

Objectives: This study aimed to examine the efficacy of group reality therapy in behavioral symptoms in ADHD and ODD.

Methods: Forty patients diagnosed with ADHD and ODD between 12 and 18 years were randomly assigned to two groups. The patients in the intervention group were participated in group reality therapy for five 120-minute sessions, once a week. The patients in the control group were enrolled in five unstructured sessions without intervention. Conners Parent Short Form questionnaire, Strengths and Difficulties Questionnaire (SDQ), and depression, anxiety, and stress scale (DASS-21) were performed at baseline, the sixth week, and the tenth week for follow-up.

Results: Conners test showed a statistically significant difference in the intervention group in hyperactivity ($P = 0.005$), conduct ($P < 0.001$), and total score ($P < 0.001$) in the sixth week, as well as in conduct ($P = 0.001$), and total score ($P = 0.008$) in the tenth week. SDQ test analyzed based on partial Eta squared test, indicated the effect size in the intervention group was 81% and in the control group was 27%. Moreover, the DASS test in the intervention group showed improvement in depression, anxiety, and stress scores ($P < 0.001$).

Conclusions: Group reality therapy is effective in the improvement of disruptive behaviors and emotional symptoms in ADHD and ODD.

Keywords: Reality Therapy, Attention Deficit Hyperactivity Disorder, Oppositional Defiant Disorder

1. Background

The increasing prevalence of attention deficit hyperactivity disorder (ADHD) and oppositional defiant disorder (ODD) in children and adolescents in recent years has turned into a reason for concerns about their psychosocial problems, learning disabilities and developmental complications, and mental health. The prevalence of these disorders in the United States is 2 - 20% in primary school and 3 - 7% in pre-puberty children (1). Studies conducted in Iran reported different results ranging from 10 - 15% (2, 3).

No satisfactory improvement was achieved in controlling behavioral problems with standard medications, which paves the way for other psychiatric disorders and impairment of interpersonal relationships. Parenting education programs, learning social skills, and behavioral interventions at school and home are often effective treatments (4, 5). Satisfactory improvement with these strate-

gies has not yet been achieved, and it is necessary to investigate other treatments, including various types of psychotherapy.

William Glasser developed a novel type of psychotherapy and a psychological theory about interpersonal relationships and particularly pathophysiology of behavioral disorders, named "choice theory" and "reality therapy". Choice theory explains "why" and "how" people behave and believes all of our actions, decisions, interactions with people, and even psychiatric symptoms are types of different behaviors. It holds the belief that we choose our behaviors in order to satisfy our genetically driven basic needs. Furthermore, Glasser stated the responsibility of people for their chosen behaviors. Glasser indicated that the better the interpersonal relationship we have, the fewer psychiatric disorders are developed. Reality therapy improves internal control, which helps us to achieve our goals by

managing our behavior, as opposed to external control, which focuses on controlling others. Besides, it illustrated the significant effect of our positive behavior and thinking on our feeling, which leads to improvement of mental health and reduction of anxiety and mood disorders (6, 7). In previous studies, the effects of reality therapy on adults have been demonstrated. Improving the quality of life and self-esteem, and having control over behaviors and consequently on emotions are cases in point (7-10). Moreover, it was effective in increasing happiness and the sense of well-being (11).

2. Objectives

Regarding the lack of sufficient studies about reality therapy in adolescents, the present study aimed to evaluate the effects of group reality therapy on the improvement of behavioral problems among adolescents diagnosed with ADHD and ODD. One of the hypotheses of this study was that reality therapy and education of choice theory not only reduce behavioral problems but also promote the improvement of other symptoms of ADHD and reduction of anxiety, depression, and stress.

3. Methods

3.1. Design

The present study was a randomized controlled trial (RCT) conducted among patients referred to children and adolescents out-patient specialty clinic of Ibn-e Sina hospital (Mashhad University of Medical Sciences, Iran) from September 2016 to November 2017.

3.2. Sample

All participants were assessed by two independent child and adolescent psychiatrists through a semi-structured clinical interview based on DSM-5 criteria (12). The sample size was evaluated based on previous studies (13). Considering satisfying the eligibility criteria, 42 adolescents enrolled in the project and were equally and randomly assigned to two groups. The data analysts and evaluators remained unaware of which participants belong to the control group. Two participants refused to continue the research, and 40 patients completed the study.

3.2.1. Inclusion Criteria

Adolescents diagnosed with ADHD and ODD were referred to psychiatry clinic, age between 12 and 18 years old, between 3 and 12 months after starting the medications

(ritalin 10 mg, maximum dose of 1 mg/kg/day, and risperidone 1 mg, maximum dose of 1 mg/day, based on symptoms.

3.2.2. Exclusion Criteria

Schizophrenia or psychotic disorders, history of drug or alcohol abuse, intellectual disability (based on clinical judgment of the psychiatrist), active seizure.

3.3. Data and Measures

ADHD symptoms of the samples enrolled in the study were quantitated through Conners test. Also, behavioral problems were assessed by the Strengths and Difficulties Questionnaire (SDQ). Depression, anxiety and, stress of participants were rated by 21-item depression, anxiety, and stress test (DASS-21). The Conners and SDQ questionnaires were filled by parents, whereas the DASS-21 test was rated by adolescents. All participants were assessed by mentioned questionnaires at baseline, the sixth week, and the tenth week afterward. All of these tests are acceptable regarding validity and reliability in Persian translated questionnaires within the Iranian population (13).

Data were analyzed using commercially available statistical packages (SPSS 11.5. Chicago, IL). The normality of quantitative variables was determined with the Kolmogorov-Smirnov test. In normal variation t-test and otherwise, Mann-Whitney tests were used. The relationship between qualitative variables was performed using the Chi-square test. Effect sized was analyzed by Partial Eta square test. All statistical tests were considered statistically significant at P-value ≤ 0.05 .

3.4. Procedure

Forty-two patients were randomly assigned to two groups. Patients in the control group joined unstructured sessions with a supportive approach for five consecutive weeks. Patients in the intervention group participated in group reality therapy for five sessions once-weekly. The duration of each session for both groups was two hours as well.

Session 1: A, Introducing the members and familiarizing the group members with each other; B, Introduction of choice theory, the basic needs, including survival, power, freedom, love, and sense of belonging, and fun; C, The examination of the concept of relationships with others, familiarity with the features of effective relations.

Session 2: A, Explaining the quality world and the perceived world; B, Explaining the concept of responsible behavior (satisfaction of our needs while respecting the needs of others).

Session 3: A, Explaining a group game and role-playing to teach the concept of internal and external control in interpersonal communication.

Session 4: A, Role-playing to replace seven deadly habits (criticizing, blaming, complaining, nagging, threatening, punishing, bribing, or rewarding to control) by seven caring habits in relationships (supporting, encouraging, listening, accepting, trusting, respecting, negotiating differences); B, Explaining the skill of non-violent communication, and anger management.

Session 5: A, Role-playing to teach the components of behavior car, including thinking, actions, feelings, and physiology. In choice theory, we believe that thinking and actions (front wheels) have significant effects on feeling and physiology (rear wheels); B, Teaching the relaxation technique and abdominal breathing; C, Reviewing the ten axioms of choice theory and previous sessions educations.

4. Results

Forty adolescents completed the trial. At baseline, there was no statistical difference in clinical characteristics of the patients, including Conners, SDQ, and DASS subscales (P -value ≥ 0.05). The basic demographic data, including age, gender, as well as the age of parents and their occupational status, were not statistically different in the two groups. The average age in the intervention group was 13.75 ± 1.88 and in the control group was 13.90 ± 1.80 . The age of the patients was between 12 and 17 years old. Moreover, 65% (26 subjects) of the patients were male, and 35% (14 subjects) were female.

Conners results after six weeks showed significant statistical differences between the control group and interventional group in conduct, hyperactivity, and total score; moreover, after ten weeks, conduct and total score were statistically different between the two groups (Table 1).

SDQ test demonstrated the significant statistical differences between the control and intervention group in conduct, prosocial, and impact score subscales in the sixth week, and in prosocial score in the tenth week (Table 2). Regarding the total score, based on partial Eta squared test, the effect size in the intervention group was 81% and in the control group was 27%.

DASS-21 test showed significant statistical differences in the sixth and tenth week in anxiety, stress, depression, and total score (Table 3).

5. Discussion

ADHD and ODD are common disorders that cause problems for adolescents and their families. Long-lasting social and developmental consequences of these disorders

indicate the necessity of investigating effective treatments. The purpose of this study was to demonstrate the effect of choice theory on behavioral disturbance in adolescents with ADHD and ODD. The present study showed training choice theory decreases the behavioral symptoms of ADHD and ODD in adolescents.

Conners results after six weeks showed significant statistical differences between the control and intervention groups in conduct, hyperactivity, and total score, which indicate only behavioral subscales, not inattention, had significant improvement. After ten weeks, only conduct and total score in the intervention group showed a statistically appropriate decrease. Moreover, the reduction of symptoms was more considerable in the sixth week in comparison to the tenth week. Regarding the inattentive characteristics of the patients and deficits in their working memory and executive function, a longer duration of psychotherapy is recommended for a more appropriate impact on their total behaviors. Therefore, the findings achieved in this research are in line with previous studies, indicating an improvement in social skills, the ability of goal setting, overcoming obstacles, sense of self-efficacy in decision making, and action-planning (14, 15). This method helps learn internal control skills that promote behavioral changes and lead to a better relationship (16-18). Reality Therapy is based on the premise that people have control over their thoughts and manners, and they are responsible for them (19). Choice theory emphasizes internal control and education of useful verbal and nonverbal interpersonal interactions, leading to more effective behaviors. One study showed there is a link between learning self-regulation skills and improvement of academic and behavioral performance (20); however, in our study, there was found no significant statistical differences in the learning subscale.

In this study, the results of SDQ test showed significant statistical differences between the control and intervention groups in conduct, prosocial, and impact score subscales in the sixth week and in prosocial score in the tenth week. Impact score indicates the total behavior, including interpersonal relationship with family, peer group, and teachers, educational function, as well as leisure activities, which are improved by learning choice theory. Conduct subscale manifests temper tantrum, obedience, fighting with others, lying, and cheating, which can be modulated by reality therapy. Prosocial score indicates understanding other feelings and being volunteers to help others. This study demonstrated that mentioned subscales could be modified by applying choice theory principles.

One study conducted among high school students showed reality therapy is an effective way to reduce disruptive behaviors (21). Another study that discussed train-

Table 1. Mean and Standard Deviation and Differences at Baseline (0), 6th, and 10th Week in the Intervention and Control Groups by Conners Test

Variables/Groups	Week 0	Differences Week 0 - 6	Differences Week 0 - 10	P-Value Week 0 - 6	P-Value Week 0 - 10
Conduct				< 0.001	0.001
Placebo	11.55 ± 2.58	0.85 ± 1.93	0.7 ± 2.2		
Patient	13.95 ± 3.53	5.05 ± 3.17	3.85 ± 2.58		
Learning				0.551	0.440
Placebo	6.55 ± 1.32	1 ± 1.45	0.8 ± 1.58		
Patient	8.1 ± 2.77	1.4 ± 0.94	1.3 ± 1.45		
Psychosomatic				0.730	0.890
Placebo	3.85 ± 1.72	0.75 ± 1.12	0.7 ± 1.75		
Patient	3.45 ± 2.94	1.1 ± 1.07	0.95 ± 1.47		
Impulsivity				0.820	0.613
Placebo	7.2 ± 1.47	0.95 ± 1.82	1.15 ± 1.42		
Patient	6.4 ± 2.16	1.2 ± 1.1	1.1 ± 1.07		
Anxiety				0.324	0.077
Placebo	5.95 ± 1.6	0.9 ± 1.62	0.7 ± 1.17		
Patient	5.7 ± 2.56	1.75 ± 1.62	1.35 ± 1.22		
Hyperactivity				0.005	0.095
Placebo	12.6 ± 2.39	1.05 ± 1.47	1 ± 1.62		
Patient	15.85 ± 4.31	2.35 ± 1.27	1.95 ± 1.54		
Total				< 0.001	0.008
Placebo	47.7 ± 7.04	5.5 ± 6.58	4.95 ± 6.88		
Patient	53.45 ± 13.32	12.85 ± 6.09	10.4 ± 6.12		

ing choice theory to students showed an improvement in the ability to develop their proactive discipline program (22). DASS-21 test estimates anxiety, stress, and depression scores. Since choice theory emphasizes leisure activities and basic needs satisfaction, it has a remarkable positive impact on the patients, emotions, and sense of wellbeing. This finding is also in line with other research about the quality of life affecting by reality therapy (7).

The present study demonstrated that training choice theory has a remarkable influence on the management of behavioral disturbances and improvement of interpersonal relationships and emotional symptoms. However, no statistical differences were found in the other symptoms of ADHD, including inattention, learning disabilities, and impulsivity. With regards to inattention symptoms of these patients, a longer period of training choice theory or reality therapy leads to more consistent and long-lasting effects. For achieving the best consequence, the same training for parents and teachers is recommended as well.

5.1. Conclusions

Group reality therapy is effective in the reduction of the behavioral impairment and emotional symptoms, and improving the prosocial behaviors in ADHD and ODD.

5.2. Limitations

Limitations of this study include low sample size and short period of follow-up.

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Footnotes

Authors' Contribution: Mahdiah Fatemi Nayeri and Atefeh Soltanifar, designing the study, performing the research, and writing the first draft of the manuscript; Atefeh Soltanifar, study concept; Mahdiah Fatemi Nayeri, data

Table 2. Mean and Standard Deviation and Differences at Baseline (0), 6th, and 10th Week in the Intervention and Control Groups by SDQ Test

Variables/Groups	Week 0	Differences Week 0 - 6	Differences Week 0 - 10	P-Value Week 0 - 6	P-Value Week 0 - 10
Emotion				0.649	0.708
Placebo	4.1 ± 1.65	0.7 ± 1.78	0.75 ± 1.41		
Patient	3.65 ± 2.28	1.25 ± 1.07	1.05 ± 0.89		
Conduct				< 0.001	0.708
Placebo	5.1 ± 1.48	0.6 ± 1.82	0.75 ± 1.41		
Patient	5.4 ± 1.27	2.75 ± 1.71	1.05 ± 0.89		
Hyperactivity				0.818	0.825
Placebo	6.7 ± 1.22	1.1 ± 1.25	0.95 ± 0.82		
Patient	6.9 ± 1.77	1.4 ± 0.94	0.95 ± 1.05		
Peer problem				0.465	0.928
Placebo	3.85 ± 0.93	0.85 ± 1.35	0.8 ± 0.77		
Patient	3.25 ± 1.65	1.2 ± 1.1	0.85 ± 0.67		
Prosocial				0.004	0.014
Placebo	5 ± 1.12	-0.15 ± 1.42	-0.45 ± 1.1		
Patient	5.95 ± 2.09	-1.5 ± 1.28	-1.6 ± 1.39		
Impact score				0.002	0.099
Placebo	3.4 ± 1.05	0.35 ± 1.31	0.6 ± 0.99		
Patient	3.8 ± 1.76	1.65 ± 0.99	1.25 ± 1.07		
Total				0.097	0.300
Placebo	19.7 ± 3.54	3.2 ± 5.06	3.05 ± 3.63		
Patient	18.85 ± 4.26	6.05 ± 2.95	4.45 ± 2.44		

Table 3. Mean and Standard Deviation and Differences at Baseline (0), 6th, and 10th Week in Intervention and Control Group by DASS-21 Test

Variables/Groups	Week 0	Differences Week 0 - 6	Differences Week 0 - 10	P-Value Week 0 - 6	P-Value Week 0 - 10
Depression				< 0.001	0.018
Placebo	11.2 ± 4.53	0.9 ± 2.1	1.05 ± 1.64		
Patient	9.35 ± 3.66	3.3 ± 1.66	2.65 ± 2.01		
Anxiety				0.04	< 0.001
Placebo	10.05 ± 3.35	1.1 ± 2.57	1.2 ± 2.63		
Patient	7.75 ± 3.34	2.85 ± 2.23	2.95 ± 1.9		
Stress				< 0.001	0.031
Placebo	15.45 ± 4.12	1.15 ± 2.48	2.05 ± 2.48		
Patient	14.6 ± 3.18	4.85 ± 1.53	4.75 ± 1.94		
Total				< 0.001	< 0.001
Placebo	36.7 ± 10.75	3.15 ± 5.4	4.4 ± 5.44		
Patient	31.7 ± 7.87	11 ± 4.25	10.35 ± 4.74		

collection; Fatemeh Moharreri and Farzad Akbarzadeh, reviewing the literature, analysis, and interpretation of data. All authors read and approved the contents of the final manuscript.

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Ethical Approval: This study was approved by the Ethics Committee of Mashhad University of Medical Science (code: ir.mums.fm.rec.1395.109), and written informed consent was obtained from the parents of the adolescents before entering the trial.

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