The Effect of Transdiagnostic Treatment on Mothers of Children with Autism Spectrum Disorder

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ABSTRACT

Objective: The present study was conducted to investigate the effect of transdiagnostic treatments on worry and rumination of mothers of children with autism spectrum disorder (ASD).

Methods: The study population included all mothers of children with ASD in Isfahan City. Among mothers of children with ASD, 40 individuals were selected from those who obtained the highest scores in worry and rumination (At least one SD higher than the mean scores of the group) and were randomly divided into control and experimental groups. To collect data, the Rumination Response Scale (RRS) and Penn State Worry Questionnaire (PSWQ) were used. The data were analyzed through multivariate analysis of covariance (MANCOVA) using SPSS-21.

Results: The results indicated that the transdiagnostic treatment is effective on the rumination (F=26.91, df=1 and 36, P<0.001) and worry (F=10.86, df=1 and 36, P<0.002).

Conclusion: Transdiagnostic treatment method can be an effective educational program for reducing emotional problems in mothers of children with ASD.

1. Introduction

As the most common neurodevelopmental disorder, Autism spectrum disorder (ASD) is characterized by deficits in social communication and interaction as well as restricted, repetitive behaviors, interests, or activities (American Psychiatric Association, 2013). The prevalence of ASD is currently estimated as 1 in 68 cases in the United States (Mandell & Lecavalier, 2014), and 95.2 in 10000 cases in Iran (Samadi & McConkey, 2015). Furthermore, males are more affected by this disorder than females with the rate of approximately 4 to 1 (Chakrabarti & Fombonne, 2005).

Raising a child with ASD is a profoundly stressful experience that presents significant and ongoing concerns for parents. Therefore, these parents are often at risk of developing stress and other mental health difficulties, including depression and anxiety (Lecavalier, Leone, & Wiltz, 2006; Riahi & Izadi–Mazidi, 2012; Hayes & Watson, 2013; Machado, Celestino, Serra, Caron, & Pondé, 2014). Baker et al. (2003) reported that parents of children with ASD suffer from elevated levels of stress as well as higher emotional symptoms. Moreover, they are mostly diagnosed with higher degrees of mood and anxiety disorders than parents of normally developing children.

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One of the psychological problems in mothers of children with ASD is rumination (Zhang, Yan, Du, & Liu, 2013), which is considered as one of the components of anxiety and depression. Rumination is the main characteristic of cognitive attentional syndrome being activated in response to negative thoughts and emotions, sadness, and the experience of loss (Wells, 2011). Mathews and MacLeod (2005) believed that when people suffered from depression, they had a lot of tendency towards negative events around themselves (rumination). Studies indicate that the response of rumination to boring experiences may make periods of depressed mood longer and more severe (Papageorgiou & Wells, 2001; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). In addition, rumination makes individuals' thought negatively oriented and these individuals have weaker capabilities for solving problems (Papageorgiou & Wells, 2001; Nolen-Hoeksema et al., 2008).

Mothers of children with ASD may also suffer from worry (Berjis, Hakim, Taher, & Hossein, 2013), which has close relationship with anxiety. Worry is a cognitive process, refers to continuous and repetitive thoughts about personal concerns on the one hand, and the problem of ending this chain of thoughts on the other hand. In other words, worry results in the continuation of anxiety, which significantly accompanies with verbal and abstract nature and doubts (Jong-Meyer, Beck, & Riede, 2009). So far, different researchers have investigated worry in parents of individuals with special needs. In a research done by Zebrack, Chesler, Orbuch, and Parry (2002), researchers found out that parents of children suffering from cancer experience a lot of worry and this worry relates to children's adaptive behaviors. Heiman (2002) indicated that parents of children with disabilities suffer from a lot of worry. Zhang, Yan, Du, and Liu (2013) concluded that parents of children with disabilities are worried about their children's' financial problems, independence, education, and career prospects.

In addition, the review of literature indicates that rumination and worry are transdiagnostic variables having active roles in more creation and continuation of emotional problems (Yook, Kim, Suh, & Lee, 2010; Ruscio, Seitchik, Gentes, Jones, & Hallion, 2011). Accordingly, it is necessary to study mothers' problems and their psychological needs, because mothers are family members with the most connection with these children. There are several treatments to decrease psychological problems for this group of parents, including cognitive behavioral therapy (CBT), metacognitive therapy, mindfulness-based cognitive therapy (MBCT), acceptance and commitment therapy (ACT), and transdiagnostic treatment.

Transdiagnostic treatment is one of the newest treatment methods, which has been developed by Barlow et al. (2011) in recent years. According to this approach, individuals should encounter their inappropriate emotional experiences and respond more adaptively to their emotions. Cognitive behavioral treatments, in spite of their relative success in emotional disorders and having powerful research supports, have a lot of limitations (Barlow et al., 2011). Among these limitations are their failure in improving a significant part of patients, existence of multiple treatment guidelines for each disorder, being time-consuming and costly for specialists and resources, having different treatment guidelines or protocols as well as multiple and long-term training courses for treating each disorder, and finally the complicatedness of the process of developing and publishing treatment guidelines for executives (Moses & Barlow, 2006).

Transdiagnostic treatment with an integration-oriented approach has been introduced in response to these limitations. The logic of the formation of transdiagnostic treatment is based on theoretical concepts and empirical results about the existence of factors common among emotional disorders. This treatment was mainly designed with the aim of targeting these driving factors. In spite of the short time passed from research and clinical application of transdiagnostic treatment, this approach has received the attention of specialists in this field and the utility of this therapeutic method has been investigated in different studies. Ellard, Fairholme, Boisseau, Farchione, and Barlow (2010) in their research confirmed the effectiveness of transdiagnostic treatment on improving patients suffering from obsessive-compulsive disorder co-morbid with generalized anxiety disorder (GAD) and panic disorder.

Titov et al. (2011) found out that transdiagnostic treatment would result in the reduction in the symptoms of anxiety and depression in individuals with the principal diagnosis of major depression, GAD, panic disorder, and or social phobia. In addition, Farchione et al. (2012) confirmed the effectiveness of this therapeutic method on patients with a spectrum of heterogeneous emotional anxiety and mood disorders in the stage after treatment and the follow up period. In another study, Chen, Liu, Rapee, and Pillay (2013) found out that transdiagnostic treatment would result in clinically significant reductions in excessive worry after treatment compared to the waitlist control. Bullis, Fortune, Farchione, and Barlow (2014) found out that transdiagnostic would result in improving affective disorder symptoms maintained up to 12 months later (at an average of 18 months post-treatment). Lopez et al. (2015) reported that transdiagnostic treatment was

effective in emotional disorders in individuals with borderline personality disorder.

So far, the effectiveness of this treatment protocol has been investigated in several studies in Iran. Mohammadi, Birashk, and Gharaie (2014) showed that transdiagnostic treatment was more effective on negative and positive emotions and emotional regulation processes in students compared to cognitive behavioral therapy. Bakhshipour Mahmood-Alilou, Farnam, and Abdi, (2013) concluded that integrated transdiagnostic treatment would result in the reduction of psychopathological symptoms in patients with GAD with comorbid emotional disorder. Abdi, Bakhshipour, MahmoodAlilou, and Farnam (2014) reported that transdiagnostic treatment would result in reducing the severity of anxiety, negative affect, behavioral inhibition, emotional dysregulation, and symptoms of emotional disorders in individuals with multiple emotional disorders. Lotfi, Bakhtiyari, Asgharnezhad, Farid, and Amini (2013) found out that transdiagnostic treatment would result in improving emotion regulation strategies in patients with emotional disorders.

Because mothers of children with ASD suffer from emotional disorders such as worry and rumination and transdiagnostic treatment has significant effects on emotional regulation disorders, but emotional disorders of mothers of children with ASD has received less attention, we aimed to investigate the effectiveness of unified protocol for transdiagnostic treatment on worry and rumination in mothers of children with autism spectrum disorder.

2. Methods

The method of the present research was quasi-experimental with pretest and posttest design and a control group.

The study population included all mothers of children with ASD in Isfahan City. Sampling was conducted at 2 stages. In the first stage, the holding of educational and treatment workshop was announced in centers specific to individuals with ASD and whereby mothers were invited to participate in the project. In the second stage of sampling, the Rumination Response Scale & Penn State Worry Questionnaire were distributed among mothers who had registered for attending the workshop. Next, among mothers who had obtained the highest scores in worry and rumination (at least one SD higher than the mean scores of the group), 40 individuals were selected and randomly divided into control and experimental groups.

The inclusion criteria were as follows: 1) Mothers of individuals with ASD, 2) Willingness to participate in

the treatment, 3) Parents have not got divorced, and 4) Their obtained scores from rumination and worry questionnaires were at least one SD higher than the mean scores of the group. Participants were excluded if they were absent from the program more than 3 sessions, did not respond to the questionnaires completely, or did not participate at home meditation practice.

After selecting participants and dividing them randomly into experimental and control groups, patients (both experimental and control groups) were administered the rumination and worry questionnaires as pretest. Then, for participants of the experimental group, 12 sessions of transdiagnostic group treatment were held (along with tasks during session and homework at home as well as group discussion). In the 12th session, the participants were asked to answer rumination and worry questionnaires, again.

Rumination Response Scale (RRS) includes 22 possible responses to sad mood which are focused upon the self, one's symptoms, as well as possible causes and consequences of the mood state. Examples are as follows: "Think why I have problems other people don't", "Think about how hard it is to concentrate", and "Think why I can't get going". Participants rate the responses on a scale of 1 (almost never respond in this way) to 4 (almost always respond in this way) and yielding scores are from 22 to 88. Previous studies have reported acceptable validity and reliability for the RRS. For this scale, the Cronbach α coefficient in the pilot study was 0.90 and its test-retest correlation was 0.67. Internal consistency of the Persian version was reported as 0.90.

Penn State Worry Questionnaire (PSWQ) is a trait-based questionnaire consisting of 16 items employed for measuring pathological worry. Subjects score the extent to which each item applies to them on a 5-point scale ranging from 1 (not at all typical of me) to 5 (very typical of me). Five items with negative structure are reversely scored before being added to form a total score ranging from 16 to 80 with higher scores showing higher levels of worry. The PSWQ has demonstrated acceptable validity and reliability when modelled as a single factor (Khaje Mansoori et al., 2016). Internal consistency was found to be high for PSWQ, i.e. the Cronbach α=0.75 (McEvoy, Watson, Watkins, & Nathan, 2013). This instrument has adequate internal consistency (α=0.86) and test-retest reliability (r=0.77) in Iran.

Treatment in the Unified Protocol (UP) for transdiagnostic treatment of emotional disorders (Barlow et al., 2011) consisted of 12 one-hour treatment sessions. The main procedures followed in each section are described in Table 1.

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Table 1. The outline of issues presented during the 12 sessions of transdiagnostic treatments.

Session No.	Central theme	Session details
Session 1	Motivation, enhancement for treatment, engagement	Increasing readiness and motivation for behavior change, weighing pros and cons for changing vs. staying the same, articulating goals, and identifying steps for achieving goals
Session 2	Psycho-education and tracking of emotional experiences	Education on the nature of emotions, components of emotional experience, concept of learned responses, Monitoring emotions, common triggers, and environmental contingencies
Sessions 3 & 4	Emotion awareness training	Teaching patients to objectively observe emotional experiences (including thoughts, sensations, and behaviors) in the moment, using brief mindfulness and emotion induction exercises
Session 5	Cognitive appraisal and reappraisal	Patients learn to consider the role of maladaptive appraisals in their emotions, as well as strategies for changing maladaptive thinking patterns and appraising situations more flexibly.
Sessions 6 & 7	Emotion avoidance and emotion driven behaviors	Patients identify patterns of emotion avoidance and emotion driven behaviors (EDBs), including subtle behavioral avoidance, cognitive avoidance, and reliance on safety signals.
Session 8	Awareness and tolerance of physical sensations	Involves exposure to physical sensations that are typically associated with anxiety and distress, to better understand the relationship between physical sensations and thoughts/behaviors
Sessions 9-11	Interoceptive and situation-based emotion exposures	Exposure to both internal and external emotional triggers, designed to increase emotional tolerance and contextual learning, including interoceptive, imaginal, and situational exposure.
Session 12	Relapse prevention	Review of treatment concepts, discussion of progress, identifying strategies for maintaining gains, and preparing for future challenges

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After getting permissions required for doing research and coordinating with authorities of autism educational and rehabilitation centers in Isfahan, written and oral consent forms were obtained from families participating in the present study and they were ensured of the confidentiality of their information as well as the issue that the present study impose no damage on them, their families, or children. It should be noted that the present study has been confirmed by the Research Ethics Committee of Psychology and Educational Sciences Department of Isfahan University.

The obtained data were analyzed using multivariate analysis of covariance (MANCOVA). For this analysis, the following assumptions were necessary: data distribution normality for variables, homogeneity of variance error and lack of differences between the matrix of variances and covariance. These assumptions were investigated by Kolmogorov-Smirnov test, Levene's test, and M box. All data analysis was done using SPSS-21 and employing MANCOVA. A value of P<0.05 was considered significant.

3. Results

Demographic information showed that the ratio of the male children to the females was 3 to 18 in the control group and 2 to 17 in the experimental group. Mean age of mothers in the experimental group was 31.4(SD=3.23) years and for the control group 34.7(SD=4.77) years. On the whole, 10% of the participants in the experimental group were less than 30 years old, 70% between 31 to 40 years old, and 20% between 41 to 50 years. In the control group, the ratios were 15%, 55% and 30%, respectively in the mentioned age groups. In the experiment group, 35% of the participants had high school diploma, 40% diploma, 10% BSc/BA, and 15% MSc/MA or higher degrees. In the control group, the ratios were 25%, 45%, 15%, 15%, respectively for the mentioned age groups. The descriptive indicators of the pretest and posttest scores for worry and rumination of both groups are presented in Table 2.

As observed in Table 2, the mean scores have been slightly changed in the posttest compared to the pretest values. As mentioned, MANCOVA needs some assumptions. The results of testing distribution normality of variables and variance homogeneity indicated that the value of statistics in Levene's test was not significant. Therefore, the homogeneity hypothesis of the variances was accepted. Also, the result of Kolmogorov-Smirnov test was not significant. Thus, the assumption of distribution normality in variables got confirmed. The hypothesis of

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Table 2. Descriptive indicators of worry and rumination for control and experimental groups in posttest and pretest stages.

Variables	Group	Pretest		Posttest	
		Mean	SD	Mean	SD
Rumination	Experimental	57.00	4.99	44.70	3.59
	Control	53.05	3.17	54.40	3.09
Worry	Experimental	41.85	2.42	33.15	3.71
	Control	42.45	3.43	41.15	3.24

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Table 3. Results of covariance analysis in control and experimental groups.

Change source	Wilks's lambda	F	P	Effect size	Test power
Group membership	0.498	17.66	0.001	0.50	1.0

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the lack of difference between variance and covariance matrixes was also investigated by Box's M-test. The results obtained as Box's M=14.648, F=1.297, P<0.226. With accepting these assumptions, MANCOVA can be done with certainty. The results from this analysis and its dimensions are provided in Tables 3 and 4, respectively.

According to Table 3, the results showed that with respect to Wikle's Lambda (17.66), at least one of the dependent variables (worry and rumination) indicated a significant difference. Results of MANCOVA are presented in Table 4.

The results of MANCOVA regarding the effect of the transdiagnostic treatments on the worry and rumination in posttests of both groups with respect to the pretests of con-

trol group are presented in Table 4. According to results, the independent variable had a significant effect on the rumination (F=26.91, df=1 and 36, P<0.001). The power of the test was 0.99 and the eta square was 0.42. Therefore, the first hypothesis of the research was confirmed. In addition, the independent variable had a significant effect on worry (F=10.86, df=1 and 36, P<0.002). The power of the test was 0.89 and the eta square was 0.23. Therefore, the second hypothesis of the research was confirmed, too.

4. Discussion

The present study was conducted to investigate the effect of the transdiagnostic treatment method on worry and rumination of mothers of children with ASD. The

Table 4. Multivariable covariance analysis results for the effects of transdiagnostic treatments on the dimensions of worry and rumination in the control and experimental.

Dependent variables	Source	SS	df	MS	F	P*	Eta	Power
Rumination	Pretest	101.41	1	101.41	2.63	0.113	0.06	0.35
	Groups	1043.40	1	1043.40	26.91	0.001	0.42	0.99
	Error	1383.56	36	38.43				
	Total	100640.00	40					
Worry	Pretest	1402.29	1	1402.29	0.955	0.335	0.02	1.0
	Groups	496.87	1	496.87	10.86	0.002	0.23	0.89
	Error	1646.84	36	45.74				
	Total	58928.00	40					

*P≤0.05 is considered significant.

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results of MANCOVA indicated that the mean scores of worry and rumination of the experimental group in the posttest were significantly lower than those of the control group. As a result, transdiagnostic treatment has effects on worry and rumination of mothers of children with ASD. Different researchers (e.g. Ellard, Fairholme, Boisseau, Farchione, & Barlow, 2010; Farchione et al., 2012; Bullis, Fortune, Farchione, & Barlow, 2014; Mohammadi, Birashk, & Gharraee, 2014; Lotfi at el., 2013) found out that transdiagnostic treatment would reduce symptoms of depression, anxiety, and emotional problems. As worry and rumination are among the components of depression, anxiety, and emotional problems, it can be said that the results of the present study are consistent with the results of previous studies.

To explain the effectiveness of this treatment, we can refer to the important role of emotion regulation in transdiagnostic treatment. Individuals who have problems in emotion regulation use maladaptive emotion regulation strategies such as suppression and avoidance, hide and ignore, which have negative consequences (Campbell-Sills & Barlow, 2007). Transdiagnostic treatment has particular emphasis on the role of emotions and applies certain techniques for managing emotions. This method helps individuals identify their own mode of reaction and responses to emotions, pay attention to objective observations of their own emotional experiences, practice non-evaluative awareness, and focus on the present in their own emotional experiences. These skills allow them to better identify thoughts, physical feelings, and behaviors, which have roles in their worriment. These skills accompany with practicing mindfulness and emotional induction (Barlow et al., 2011).

Emotional awareness is another process that may have contributed to the effectiveness of this treatment. Transdiagnostic treatment contribute to patients' better understanding of thoughts, feelings, and behaviors in creating internal emotional experiences (Ellard et al., 2010). This issue makes mothers of children with ASD learn that thoughts and feelings result in creating a lot of behaviors (such as rumination). It helps patients have better awareness of their own emotional experiences (such as behavioral stimuli and consequences) and have a more objective view towards their own emotions rather than being involved with emotional responses (Allen et al., 2012). Achieving this awareness is considered as a main skill, which explains the effectiveness of transdiagnostic treatment such as ER-CBT, DBT, MBCT and ACT (Zargar, Mohammadi, Omidi, & Bagherian, 2013; Mehrabi et al., 2014).

To explain the effectiveness of transdiagnostic treatment on worry, we can refer to the role of encounter, which is one of the main parts of this treatment method. The beginning of encounter may result in increase in the intensity of symptoms, but later individuals will significantly and sustainably become free from negative emotions such as worry (Forsyth, Barrios, & Acheson, 2007). Another reason for the effectiveness of transdiagnostic treatment on worry is the role of challenge with negative evaluations and external/internal threats such as physical feelings and emotions and the increase in cognitive flexibility. Contrary to other cognitive therapists, the emphasis of transdiagnostic treatment is not on deletion or suppression of negative thoughts and replacement of them with realistic or adaptive evaluations, but the emphasis is on the increase in the cognitive flexibility as a strategy of adaptive emotion regulation (Allen et al., 2012). The application of these techniques and other parts of transdiagnostic treatment explain the effectiveness of transdiagnostic treatment.

In conclusion, group transdiagnostic strategies were effective on reducing the worry and rumination of mothers of children with ASD and indicated an acceptable size effect. The results obtained from the research probably indicate that the transdiagnostic protocol developed by Barlow et al. (2011) can be employed in group and as preventive interventions in mothers of children with ASD. It is expected that by employing the transdiagnostic approach in preventing and diagnosing damaging factors such as emotion regulation problems, the effectiveness, development, and efficiency of preventive interventions can be increased in this group of mothers. Identifying underlying factors common in the formation of worry and rumination as well as other emotional disorders and the employment of treatment interventions in this regard can be effective on the prevention of the most common mental disorders. The results of the present study, in addition to introducing and emphasizing this treatment method as an effective and efficient method in treating emotional problems such as worry and rumination in mothers of children with ASD, indicated that this treatment can compensate some problems of previous treatments such as spending considerable time and money for training different treatment guidelines on the part of clinical specialist. In addition, it can resolve the confusion caused by finding the appropriate treatment of the different treatment options for the same disorder.

The interpretation of the present study results must be considered in the context of its limitations. First, the small sample size makes it difficult to generalize the research findings. Second, all instruments were based on

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direct client report. Therefore, the obtained data may have been influenced to some degrees by factors such as over- or under-reporting symptom severity, biased, distorted recall, and so on. However, the use of a waitlist comparison condition is also a limitation as we were not able to determine whether the decrease in the worry and rumination of patients reported after completing the unified protocol are different from what would be found. Future research is recommend to apply transdiagnostic interventions in different samples such as children, adolescents, elderly, and in various contexts such as hospitals and clinics. A long-term follow-up test for consequences of transdiagnostic therapy is also suggested. At last, it seems that transdiagnostic interventions require more probes for comparing specific interventions and the other disorders with the UP.

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Conflict of Interests

The authors declared no conflict of interests.

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