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# **Effectiveness of humor skills training on psychological hardiness and psychological distress of mothers with children with autism spectrum disorder**

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**ABSTRACT:** The aim of this study was to investigate the effectiveness of humor skills training on psychological hardiness and psychological helplessness of mothers with children with autism spectrum disorder. According to the objectives and hypotheses, the present study method is a semi-experimental type (pre-test-post-test design with control group). The statistical population of this study included all mothers of children with autism spectrum disorder who referred to autistic pediatric clinics in the first half of 2020 in Ardabil. Among mothers of children with autism, 40 mothers were selected by available method and randomly assigned to two groups of 20 patients and at least 15 samples were suggested in experimental research. The data collection tool in this study is a questionnaire that standard questionnaires of psychological hardiness, learned helplessness have been used. Statistical indicators used include calculation of frequency, mean and standard deviation. Multivariate analysis of variance (MANOVA) was used to test the research hypotheses. Data analysis was performed using SPSS statistical software, 18th edition. The results showed that the psychological hardiness of mothers with children with autism spectrum disorder who received humor skills training was higher than mothers who did not receive this training. The dimensions of psychological hardiness variable (commitment, control and struggle) of mothers who received humor skills training are more than mothers who did not receive this training and there is a significant difference between the amount of learned helplessness of mothers of children with autism spectrum in the experimental and control group, so that the learned helplessness of mothers who received humor skills is less.

**Keywords:** Teaching humor skills, Psychological hardiness, Psychological distress, Autism spectrum disorder.

## **INTRODUCTION**

Autism spectrum disorder (ASD) as a neurodevelopmental disorder is a disorder whose diagnostic criteria have occurred based on the fifth diagnostic and statistical manual of mental disorders (DSM-5) as a continuous impairment of communication and social interactions in different situations and patterns of interests, behavior and repetitive activities limited in the present or past and at the beginning of development (American Psychiatric Association, 2013).

Autism Spectrum Disorders Information Center considers the symptoms of this spectrum to be defects in verbal and nonverbal communication, eye contact abnormalities, inability to participate in imaginative games, sensory processing problems, intense and unusual attachment to objects, repetitive games, repetitive and stereotypical movements, and inflexible adherence to everyday habits, destruction of emotional and social bilateral relationships and self-harm (Murphy, 2017).

Behavioral problems are not the main feature of autism spectrum disorders, but these problems are significantly seen in these children and create problems for these individuals and their families (American Psychiatric Association, 2013). Therefore, paying attention to the mental health of parents of autistic children, especially their mothers as primary caregivers, is one of the most important issues in this group of children.

In other words, spending time with a child with pervasive developmental disorders causes anxiety and stress in family members, challenges the family system, damages the health and balance of the family (Fallahzadeh, Nouri, Pourebrahim and Nzarboland, 2018).

Psychological hardiness was first considered by Kobasa and was considered as a formed set of personality traits that acts as a source of resistance in contrast to life's pressing events, such as protective shields, and its qualified individuals can efficiently deal with life's problems and pressures.

Kobasa and his colleagues have defined hardiness as a combination of beliefs about themselves and the world, composed of three components of commitment, containment and struggle. (Hashemi and partners, 2019). Humor skills training is a positive and inclusive activity experienced by people from social and cultural contexts around the world.

Zahed and partners (2011) in a study entitled "The Mediating Role of Psychological Hardiness in the Relationship between Forgiveness and Humor with Hope" showed that firstly, forgiveness and humor have a poor prediction of hope. Secondly, forgiveness is a predictor of tenacity. Thirdly, tenacity plays a mediating role between forgiveness and hope in people. Based on the findings of this study, it can be concluded that the constructs of hardiness and forgiveness (directly and indirectly) can predict changes related to hope in people. According to the above, the aim of this study was to find out the effectiveness of humor skills training on psychological hardiness and psychological helplessness of mothers with children with autism spectrum disorder.

**Research methodology and type of research plan:**

Materials and Methods: According to the objectives and hypotheses, the present study method is a semi-experimental type (pre-test and post-test design with control group).

Random assignment	group	pre-test	intervention	post-test
R	Teaching humor skills	*	*	*
R	control	*		*

**Statistical population:**

The statistical population of this study included all mothers of children with autism spectrum disorder who referred to pediatric clinics referred to autism clinics in the first half of 2020 in Ardabil.

**Sampling method and sample size:**

Among mothers of children with autism, 40 mothers were selected by available method and randomly assigned to two groups of 20 patients, and in experimental research, at least 15 samples were suggested (Delawar, 2006).

**Data collection method:**

Data collection in this study was that after obtaining the necessary permissions and coordination, the treatment clinics of autistic children in Ardabil were referred. Then, by inviting mothers of these children and explaining the research objectives to them, through implementing psychological hardiness questionnaires, learned helplessness, 40 of them were selected and replaced in experimental and control groups.

Then, the experimental group received humor skills training (for 8 sessions, each session for 90 minutes) and the control group remained without any intervention and finally both groups completed the questionnaire again and the questionnaires were collected and the information was analyzed by SPSS software.

Due to the coronavirus outbreak and observance of health protocols in the executive of the study, we encountered problems that individual interventions were performed and finally the cooperation of parents of these children solved these problems.

**Data analysis method:**

Data analysis was performed in descriptive and inferential sections. Descriptive indices such as mean, standard deviation and frequency and percentage tables were used in descriptive section. Then, multivariate analysis of variance (MANOVA) was used to test the research hypotheses. Data analysis was performed using SPSS statistical software, 18<sup>th</sup> edition.

Table 1. summarizes the implementation of a treatment program based on teaching specific skills of humor, practicing jokes, benefits and different types of humor, harmful humor, cognitive restructuring, facing resistances, encouraging the advancement of humor, and direct guidance on how to use it, how to use humor in the environment and times of crisis and stresses of life

Meeting Row	Meeting Description
First session	Training about treatment based on humor skills and its goals. Familiarity and education about psychological hardiness and learned helplessness Discussion of strategies for this treatment Providing homework and attracting parental cooperation Check the reaction to the previous meeting and the task of the previous session
Second session	Investigating the specific control strategies that a person has used so far Assessing the costs and damages that these strategies have had on one's life. Investigating the benefits of these strategies Strengthening the relationship between parents and children Check the reaction to the previous meeting and the task of the previous session
Third session	Teaching important things like (teaching specific humor skills, practicing jokes, benefits and different types of humor, harmful humor, cognitive restructuring, facing resistance, encouraging the advancement of humor, and direct guidance on how to use it, how to use humor in a living environment and in times of crisis and stresses of life) Strengthening and evaluating humor skills
Fourth session	Check the reaction to the previous session and the task of the previous session. Strengthening and evaluating humor skills
Fifth session	Check the reaction to the previous meeting and the task of the previous session Strengthening communication skills in the form of group therapy Self-viewer - Home assignment
Sixth session	Check the reaction to the previous session and the task of the previous session. Strengthening and evaluating important humor skills objectively and visually
7th and 8th session	Check the reaction to the previous meeting and the task of the previous session Strengthen and evaluate humor skills and exercises. Strengthen your humor skills

**Results**

**Demographic characteristics:**

Table 2. Mean and standard deviation of age of mothers of children with autism spectrum disorder in the studied groups

Variable	Group	Mean	Standard Deviation
Age	Experimental	33.65	12.03
	Control	37.11	13.65

As can be seen in Table 2, the mean age of mothers in the experimental group is 33.65 and in the control group is 37.11.

Table 3. Education status of mothers with children with autism spectrum disorder in the studied groups.\

Group	Education						
		Under Diploma	Diploma	Associate Diploma	Bachelor	Master	Total
Experimental	F	5	20	4	9	2	40
	Percent	12.5	0.50	20	22.5	0.5	100
Control	F	4	15	7	11	3	40
	Percent	20	37.5	20	22.5	7.5	100

As can be seen in Table 3, in the experimental group, 0.50 respondents with the majority of diploma education and in the control group 37.5 also have a diploma.

**Descriptive finding:**

Table 4. Descriptive statistics of psychological hardiness dimensions in mothers of children with autism spectrum disorder in the studied groups

Variable	Group	Time	Mean	Standard deviation
commitment	Experimental	pre-test	14.34	3.86
		post-test	25.80	6.86
	control	pre-test	13.30	3.23
		post-test	12.65	3.37
control	Experimental	pre-test	11.67	3.01
		post-test	24.70	5.43
	control	pre-test	14.60	3.54

Struggle	Experimental	post-test	13.11	3.37
		pre-test	11.36	3.42
	control	post-test	23.67	6.32
		pre-test	12.15	3.97
Total	Experimental	post-test	13.30	3.12
		pre-test	35.35	12.80
	Control	post-test	65.38	19.81
		pre-test	36.10	13.98
		post-test	37.33	14.08

As can be seen in Table 4, the mean and standard deviation of psychological hardiness dimensions (commitment, control and Struggle) are expressed in the control and experimental groups in the post-test phase of the control group and the post-test of the experimental group.

Table 5. Descriptive statistics of helplessness learned in mothers of children with autism spectrum disorder in the studied groups

Variable	Group	Time	Mean	Standard Deviation
learned helplessness	Experimental	pre-test	61.37	16.30
		post-test	45.06	11.36
	control	pre-test	59.38	15.38
		post-test	63.11	17.08

As can be seen in Table 5, the mean and standard deviation of helplessness learned in mothers of children with autism spectrum disorder are expressed in the post-test stage of the control group and the post-test of the experimental group.

Inferential finding:

Main hypothesis: Teaching humor skills affects the hardiness and helplessness of mothers of children with autism spectrum.

Table 6. Levine test results to determine the parity of variances.

F	df1	df2	Significance level
0.745	1	38	0.994
0.551	1	38	0.462

According to the results of table (6), the significant level of error of variance parity test ( $p > 0.05$ ) shows that the variances are equal.

Table 7. Box test to investigate homogeneity assumptions of variance matrix

Test	Value
Box	4.474
F	1.406
df1	3
df2	259920.000
Significance level	0.239

As shown in Table 7, the results of the box test are given to investigate the homogeneity of the matrix of variances. According to the results, the significance level ( $\text{sig} = 0.239$ ) is greater than 0.05. Therefore, the assumption of homogeneity of the variance matrix is established. According to table 6 and 7, since the assumption of homogeneity of error variances and homogeneity of the covariance matrix were established;

Multivariate variance analysis was used to compare the scores (hardiness and helplessness of mothers of children with autism spectrum) in the studied groups.

Table 8. The results of a significant multivariate variance analysis (hardiness and helplessness of mothers of children with autism spectrum)

	Test	Value	F	df	df (error)	P	Eta Square
Model	Pillais Trace	0.612	27.619	2	35	0.000	0.612
	Wilks's lambda	0.388	27.619	2	35	0.000	0.612
	Hotelling's Trace	1.578	27.619	2	35	0.000	0.612
	Error Largest Root	1.578	27.619	2	35	0.000	0.612
Group	Pillais Trace	0.889	139.612	2	35	0.000	0.889

Wilks's lambda	0.111	139.612	2	35	0.000	0.889
Hotelling's Trace	7.978	139.612	2	35	0.000	0.889
Error Largest Root	7.978	139.612	2	35	0.000	0.889

As table (8) shows, the significant levels of all tests allow the ability to use multivariate analysis of variance. These results show that there is a significant difference in at least one of the dependent variables in the studied groups. ( $0.01 < p < f = 612/139$ ,  $0.11 =$  Wilks's lambda) Eta square shows.

The difference between the groups with regard to the dependent variables is significant and the rate of this difference based on Wilks's lambda test is 0.11, i.e. 88% of the variance is related to the difference between the groups due to the interaction of dependent variables.

Table 9. Multivariate Variance Analysis Test (Manova) On (Hardiness and Helplessness of Mothers of Children with Autism Spectrum).

Sov	dependent variable	sum of squares	df	mean square	F	P	Eta Square
Model	psychological hardiness	10672.200	1	10672.200	1062.606	0.000	0.933
	learned helplessness	14824.013	1	14824.013	1737.948	0.000	0.958
Group	psychological hardiness	6.050	1	6.050	210.602	0.000	0.533
	learned helplessness	3.613	1	3.613	250.424	0.000	0.562
Error	psychological hardiness	763.300	38	10.043			
	learned helplessness	648.250	38	8.530			

As table (9) shows There is a significant difference between psychological hardiness and learned helplessness in pre-test and post-test of humor skills training group and there is a significant difference in pre-test and post-test of humor skills training group ( $p < 0.01$ ) and also from the results of descriptive statistics of variables, it can be concluded that psychological hardiness of mothers of children with autism spectrum disorder who received humor skills training, more of mothers.

Who did not receive this training, and the helplessness learned in mothers of children with autism spectrum disorder who received humor skills training is less than mothers who did not receive this training.

Sub hypothesis 1: Teaching humor skills affects the psychological hardiness of mothers with children with autism spectrum disorder.

Table 10. Levine test results to determine the parity of variances.

F	df1	df2	Significance level
0.631	1	38	0.432
0.339	1	38	0.564
1.123	1	38	0.296

According to the results of table (10), the significant level of error of variances parity test ( $p > 0.05$ ) shows that the variances are equal.

Table 11. The results of a significant test of multivariate variance analysis of the variance of humor skills training on the dimensions of psychological hardiness of mothers of children with autism spectrum disorder.

	Test	Value	F	df	df (error)	P	Eta Square
Model	Pillais Trace	0.776	26.839	3	37	0.000	0.776
	Wilks's lambda	0.224	26.839	3	37	0.000	0.776
	Hotelling's Trace	3.463	26.839	3	37	0.000	0.776
	Error Largest Root	3.463	26.839	3	37	0.000	0.776
Group	Pillais Trace	0.833	38.530	3	37	0.000	0.833
	Wilks's lambda	0.167	38.530	3	37	0.000	0.833
	Hotelling's Trace	4.972	38.530	3	37	0.000	0.833
	Error Largest Root	4.972	38.530	3	37	0.000	0.833

As table (11) shows that the significant levels of all tests allow the ability to use multivariate analysis of variance. These results show that there is a significant difference in at least one of the dependent variables in the studied groups. ( $0.01 < p < 38.53 F =$ ,  $0.39 =$  Lambda Wilkes). Eta square shows that the difference between groups according to the dependent variables is significant and the rate of this difference based on Wilks's lambda test is 0.16.

That is, 83% of the variance related to the difference between groups is due to the interaction of dependent variables.

Table 12. Box test to investigate homogeneity assumptions of variance matrix.

Test	Value
Box	18.657
F	1.652
df1	10
df2	6903.586
Significance level	0.086

As shown in Table 12, the results of the box test are used to investigate the homogeneity of the variance matrix. According to the results, the significance level ( $\text{sig} = 0.086$ ) is greater than 0.05.

Therefore, the assumption of homogeneity of the matrix of variances is established. According to table 11 and 12, since the assumption of error variances and homogeneity of covariance matrix was established, multivariate variance analysis was used to compare scores (commitment, control and Struggle) in the studied groups.

Table 13. The results of multivariate variance analysis test on teaching humor skills on the psychological hardiness dimensions of mothers with children with autism spectrum disorder.

Sc	dependent variable	total square	df	mean square	F	P	Eta Square
Model	commitment	424.024	1	424.024	35.801	0.000	0.513
	control	559.259	1	559.259	42.169	0.000	0.554
	Struggle	615.843	1	615.843	22.622	0.000	0.400
Group	commitment	865.907	1	865.907	73.110	0.000	0.683
	control	332.147	1	332.147	25.045	0.000	0.424
	Struggle	1219.277	1	1219.277	44.789	0.000	0.568
Error	commitment	402.694	37	11.844			
	control	450.916	37	13.262			
	Struggle	925.574	37	27.223			

As table (13) shows that the dimensions of psychological hardiness variable (commitment, control and struggle) of mothers with children with autism spectrum disorder have a significant difference between control and experimental groups at alpha level of 0.01.

Therefore, the first sub hypothesis is confirmed and there is a difference between teaching humor skills on the psychological hardiness dimensions of mothers of children with autism spectrum disorder between the control and experimental groups. Also, from the results of descriptive statistics of variables, it can be concluded that the dimensions of psychological hardiness (commitment, control and struggle) of mothers who received humor skills training are more than mothers who did not receive this training.

Sub hypothesis 2: Humor skills training affects the learned helplessness of mothers with children with autism spectrum disorder.

Table 14. Levine test results to determine the parity of variances.

F	Df1	Df2	significant level
1.210	1	26	0.326

According to table results (14), the significant level of error of variances parity test ( $p > 0.05$ ) shows that the variances are equal.

Table 15. Univariate Variance Analysis to Compare Mean Scores of Humor Skills Training on Learned Helplessness in Mothers of Children with Autism Spectrum Disorder.

Sc	Total square	df	Mean square	F	Sig	Effect size
Corrected model	2196.036	2	549.009	19.457	0.000	0.289
width from origin	729.831	1	729.831	21.317	0.000	0.436
Group	2195.980	1	33.602	30.089	0.000	0.604
Group * Time	33.602	1	731.993	24.942	0.000	0.589
Error	9422.931	38	367.917			
Total	167283.000	38				
Corrected Total	11618.967	39				

According to the results of table 15 ( $p < 0.01$   $F = 34.01$ ) for the learned helplessness variable of mothers of children with autism spectrum disorder, the difference between the control and test groups at the alpha level of 0.01 is significant, so the second sub

hypothesis is confirmed and there is a difference between the learned helplessness of mothers of children with autism spectrum disorder between the control and experimental groups.

Also, the results of descriptive statistics of variables can be concluded that the learned helplessness of mothers who received humor skills is less than mothers who did not receive this training.

**Discussion & Conclusion:**

Main hypothesis: Teaching humor skills affects psychological hardiness and learned helplessness of mothers with children with autism spectrum disorder.

In this regard, the results showed that there is a significant difference between psychological hardiness and helplessness learned in pre-test and post-test of humor skills training group and there is a significant difference in pre-test and post-test of humor skills training group ( $p < 0.01$ ) and also from the results of descriptive statistics of variables can be concluded that psychological hardiness of mothers with children with children can be concluded. Autism spectrum disorder that received humor skills training is higher than mothers who did not receive this training.

And the helplessness learned in mothers with children with autism spectrum disorder who received humor skills training is less than mothers who did not receive this training. The results were also in line with the results of researches by James C (2018), Ching et al. (2016) and Fry (2016). In this regard, James C. (2018) in a study entitled Sense of Humor when coping with the stress of life showed that humor and humor alone are associated with less depression and higher self-esteem.

However, these relationships vary according to the gender of the subject and the frequency of people's use of humor to cope. The results confirm the notion that feelings of humor play an important role in the psychological regulation of some people. In explaining this assumption, it can be said that psychological hardiness is a construct that as a personality trait and with its effective role in adjusting the consequences of stress, has been extensive studies so far.

Philosophers and social scientists observed many people over the years who were better adapted to unpleasant life situations due to certain personality traits. In popular culture, there are also people who are known by traits such as "resistant" and "patient", these people apparently tolerate problems better than others and come out later, and according to the results of this hypothesis, humor skills can positively affect the level of psychological hardiness of individuals.

Lehman and partners believe that the use of humor is an adaptive characteristic of personality that can act as a shield against the effects of life stress. In Torrance's opinion, humorous people have some characteristics: fulfilling the role of funny comedy and fun, creating cartoons that are humorous and innovative,

Making jokes or stories ridiculous in discussions, making others laugh (not mocking people), joking with others, adapting cleverly or superiorly when winning or succeeding, attaching incongruous factors to each other, appending incongruous factors that are suddenly communicated, considering something that doesn't matter and considering or embodying what matters. And finally, it can be said that teaching humor skills due to raising the level of positivity and hope for the future of these mothers increases the level of hardiness and reduces helplessness in people.

Sub hypothesis 1: Teaching humor skills affects the psychological hardiness of mothers with children with autism spectrum disorder. In this regard, the results showed that there is a difference between teaching humor skills on the psychological hardiness dimensions of mothers of children with autism spectrum disorder between control and experimental groups. Also, from the results of descriptive statistics of variables, it can be concluded that the dimensions of psychological hardiness (commitment, control and struggle) of mothers who received humor skills training were more than mothers who did not receive this training ( $< P$ ). The results were also in line with the results of researches by James C (2018), ching and partners. (2016) and Fry (2016).

In this regard, Qing et al. (2016) had a study entitled The Effectiveness of Humor Education in Adolescents with Autism, which, given that humor education has been used and proven in educational and clinical cases, is relatively rare for people with autism. The present study presented a workshop on humor and knowledge skills in order to strengthen the understanding and admiration of humor from people with autism and investigated the effects of this training.

In explaining this hypothesis, it can be said that playing the role of funny and recreational comedy, creating caricatures that are witty and innovative, making jokes or stories in discussions make others laugh. (not mocking people), joking with others, adapting cleverly or superiorly when winning or succeeding, attaching incongruous factors to each other, appending incongruous factors that are suddenly connected.

Considering something that is not important and considering or manifesting what is important and by learning these skills, the dimensions of psychological hardiness (commitment, control and struggle) in people who have many problems also improve the situation in psychological hardiness.

Sub hypothesis 2: Teaching humor skills affects the learned helplessness of mothers of children with autism spectrum disorder.

In this regard, the results showed that there is a difference between the learned helplessness of mothers of children with autism spectrum disorder between the control and experimental groups. Also, the results of descriptive statistics of variables can be

concluded that the learned helplessness of mothers who received humor skills was lower than mothers who did not receive this education ( $P < 0.01$ ).

The results were in line with the results of Khanjani and Rezaie's (2016), Karimi Vakil and partners (2017), Fallahzadeh and partners (2018), Hamidi and Jafari (2017), Mikaeili and partners (2019), Lan Lee (2007), James C (2018). In this regard, Mikaeili and partners (2019) in a study entitled Comparing compassion for themselves, showed humor and emotional impermanence among mothers of autistic children with normality in Ahvaz.

There was a significant difference between self-compassion and emotional impurity of mothers of children with autism and mothers of normal children, but there was no difference between the two groups regarding humor. The findings of this study can be an important achievement for psychological interventions to mothers of autistic children, and Fry (2016) showed that humor, physical illnesses and emotional disturbances, such as grief, can be used as a joke effect on daily disturbances and physical illnesses.

In explaining this assumption, it can be said that from the viewpoint of philosophers and ancient thinkers, humor is influenced by the four disturbances that cause physical and mental health. They believed that blood was red, flowing, warm and humid, and if it prevailed over other disturbances, the person would be healthy, hopeful, jolly and in a good mood. Psychology considers humor as one of the characteristics of human personality and has examined it from different perspectives. In the 1960s, psychologists became interested in criticizing humor and laughter for human existence. Some psychologists believe that humor and laughter are of great importance to human beings and their lives, and according to the results of this hypothesis, teaching humor skills can reduce the amount of helplessness learned by mothers of children with autism spectrum disorder.

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