



INVESTIGATION INTO THE EFFECTIVENESS OF ACCEPTANCE AND COMMITMENT THERAPY (ACT) ON PROCRASTINATION AND SELF-EFFICACY OF MOTHERS LIVING IN RAY CITY

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Abstract:

The aim of this study was to investigate the effectiveness of Acceptance and Commitment Therapy (ACT) in reducing procrastination and increasing the self-efficacy of mothers living in Ray city. The research method used was a single-factor experiment with repeated measures. Sampling was done using the multistage cluster sampling method. The sample consisted of 41 mothers of primary school students from Ray city. The intervention was over 8 sessions and each session lasted 90 minutes. Data was collected in three phases (beginning, end, and follow-up). Data was analyzed through the examination of the variance of repeated measurements. The results of this study showed that the research hypotheses were confirmed at a significant level ($P= 0.00$). It can therefore be said that group therapy based on acceptance and commitment reduces procrastination and increases self-efficacy in mothers.

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1. Introduction

In general, the achievement of each person's potential capabilities is possible thanks to the optimal use of the capabilities and possibilities offered throughout life. Most people constantly feel the distance between what they are and what they could be. Some have made efforts to reduce this distance and others have resigned themselves to staying in this condition. Acknowledgment of efficient factors in creating this distance and minimizing the effect of these factors is a necessity. Among the obstacles to achieving potential capabilities are two variables: procrastination and low levels of self-efficacy.

Most of us can remember the times when we procrastinated, thus making a mistake in our jobs and duties. Procrastination is a complicated concept and different people may understand it in different ways. In general, it appears that the term procrastination is used to mention the times that people leave their jobs incomplete (Fernie, 2013). Procrastination is considered as a behavioral habit that has a wide prevalence in different societies and its growing trend is highly extensive. This habit is accompanied by a delay in carrying out a task or duty, which has unpleasant consequences (Blunt and Pychyl, 1998). McCown and Johnson (1989) reported that among the people interviewed, more than 25% of them recognize procrastination as a fundamental problem and 40% of them believe that procrastination has caused a financial loss in the past year. Procrastination has a negative effect on function (Kim and Seo, 2015), and is connected with low mental health. Procrastination has many unpleasant results and outcomes, including failure in tasks, followed by loss of job and chances of success. Many researchers have studied procrastination and reported that it is related to many variables. Procrastination is a habit that exists in most people, and this has led many to believe that this property is one of the natural desires of human beings (Savari, 2013). We speak of procrastination as a behavioral problem that adults experience in their daily routines (Jansen and Carton, 1999). Analysis shows that procrastination is not only a time management problem, but is a complicated process that includes emotional, cognitive, and behavioral factors (Weisi, 2011). Scent and Boes (2014) also introduce procrastination with different aspects including cognitive, behavioral, and emotional factors.

Many theories can be used to explain procrastination. Some sources have used the lack of self-regulation and others the lack of self-efficiency to explain it. Some have also used the fear of defeat to explain procrastination. Analysis of research literature about this case shows that most research work carried out on this topic includes the population in the fields of learning, teaching, and education. Valizadeh *et al.* (2013) have reported a reduction in procrastination and an increase in educational achievement using a procrastination reduction package in the university student population.

Eckert *et al.* (2016) reported a change of unpleasant emotions effective in reducing procrastination. Atadokht, Muhammadi, and Basharpour (2015) found an inverse and negative relation between the motivations of achievement and procrastination. Lukas

and Breking (2018) could reduce procrastination in a control group with a mobility-based program. Chen and Kruger (2017) know that people's environment has evolved in procrastination. These researchers believe that the low rate of success in the future, imposed on people due to environmental properties, is a predictor of procrastination; in other words, people's life history is determinative in their procrastination. Chen and Qu (2017) reported the unpredictability of the environment in relation to procrastination. Hairston and Shpitalni (2016) know procrastination is related to sleep problems and find the therapy for sleep problems necessary to treat procrastination. Metin, Tris, and Peeters (2016) emphasized the relationship between procrastination in the workplace and job resources, and the low job demands with mediation of job fatigue. Smith *et al.* (2017) recognized perfectionism as an anticipant factor of procrastination.

As mentioned earlier, another obstacle to the use of talent and chances is the lack of self-efficacy. Based on Bandura's theory of "social learning", believing in self-efficacy has effects on individuals' choices. People are orientated towards tasks in which they feel capable and confident, and they stay away from those that pose difficulties for them. Self-efficacy beliefs determine how much people consume their energy for their activities and how much they resist obstacles. In other words, self-efficacy is the "individuals' belief" in the ability to do their task (Bandura, 1986 quoted from Schultz and Schultz, 2013). Self-efficacy is the intention to behave or the intention to reach a special target. Self-efficacy is not self-esteem. Self-esteem includes a person's belief and attitude towards him/her self's value. Self-efficacy is not a motivator or a need for inhibition. Someone may have a strong demand for controlling, it is a special situation, while beliefs of inefficiency are dominant in him/her. The expectation of behavior's consequences is the belief of a person to believe in a specific behavior's result given behavior in a given situation; but the belief in self-efficacy is the belief of a person to be able to provoke a given result with a specific behavior (Miltiadou and Savenye, 2003).

According to Mohammad-Khani (2009), high self-efficacy causes stability and endurance; people with self-efficacy will not give up easily after defeat, but they will look for other ways of achieving their goals. The more people believe in their coping skills, the less they face depression and anxiety when facing life's problems. They know their strengths and weaknesses; they choose realistic targets and have reasonable expectations and they are aware of the benefits of using problem (problem-oriented) and emotion (emotion-oriented). Because they trust their coping skills, they will never avoid life's problems because they know they can make it through. Research showed that self-efficacy believes that it affects many aspects of people's personal functioning. Pajares and Schunk (2002) believe that people with a higher level of self-efficacy have better physical and mental health. The feeling of high self-efficacy increases personal health and the ability to perform tasks in different ways. People who trust their abilities, consider critical cases as challenges; they believe they can get threat situations under control. Such considerations about abilities reduce stress, and depression and cause duties to be completed.

Zahedinejad, Vossoughi-Ilkhchi (2013) expressed that having a high level of self-efficacy in mothers is related to a reduction of children's sleep problems. Imani *et al.* (2015) reported that the increase in the level of self-efficacy is related to the increase in life and marriage satisfaction. In a research study, Zeraat *et al.* (2014) reported a positive and direct relationship between citizenship behaviors and job satisfaction. Rafie *et al.* (2014), Sheikh, Fatah-Abadi, and Heidari (2013), Tamaddoni, Hatami, and Hashemi-Resini (2010), Fatehi, Abdekhodae and Poorgholami (2012), also reported a meaningful and negative relation between self-efficacy and procrastination.

With the review of the research literature on self-efficacy and procrastination, the importance of these two mental structures is quite obvious in people's lives. As Stromquist (1999) said, people with weak self-efficacy avoid obstacles instead of facing them, they give up and do not show stability and resistance; they do not face problems realistically (procrastination). People who choose extremely high criteria for themselves, see and learn expectations of behavior, form examples of great success, and try to fulfill these extremely high expectations despite their abilities, will be defeated and, as a result, will face the feeling of worthlessness and depression. It appears that finding a tool for increasing the level of self-efficacy and reducing procrastination for all people who are enthusiastic about growing, optimal use of their own capabilities, life opportunities, and also those that are somehow related to education and therapy, seems to be a necessity.

The aim of the present study is to determine the rate of effectiveness of group therapy rate based on Acceptance and Commitment Therapy (ACT) for the procrastination and self-efficacy of mothers in Ray city. Acceptance and Commitment Therapy is a kind of clinical behavior analysis that is used in psychotherapy. This method is an evidence-based psychological approach that mixes strategies of acceptance and mindfulness in different ways, with strategies of commitment and behavior change. In fact, we can say one of the main goals of ACT is to increase psychological flexibility; in other words, people are helped to get out of the avoidance and cognitive fusion circle (Hayes and Strosahl, 2012). ACT has 6 core processes that lead towards psychological flexibility; these 6 processes are: acceptance, diffusion, self as context, contact with the present moment, values, and committed action (Muhammadi *et al.*, 2014).

In this therapy, at first, we try to increase mental acceptance of mental experiences (thoughts, emotions, etc.) and in return, the ineffective control will be reduced. We teach patients that any action to avoid controlling these unwanted mental experiences is ineffective or has an inverse effect and causes them to be strengthened. So, these experiences must be completely accepted without any internal or external reaction to eliminate them. At the second level, patients' mental awareness in the present moment must increase. At the third level, patients are taught to defuse themselves from these mental experiences (cognitive diffusion) so that they can act independently from these experiences. At the fourth level, an attempt is made to reduce the excessive focus on the imaginative self or personal story which is made by the patients. At the fifth level, we help them to know their personal values determine them clearly, and make them specialized behavior goals. Finally, making emotions for commitment action; actions

focused on determined goals and values with acceptance of mental experiences (Boostani, Izadikhah, and Sadeghi, 2017). These experiences can be irrational and obsessive thoughts, flashbacks, anger, stress, phobias social anxiety, etc. The major advantage of this method compared to other psychotherapies is that it considers the motivational aspects and cognitive aspects for more effect and more continuity of therapy's effectiveness (Anvari, 2013). There is a plethora of research literature in conforming to this therapy's effectiveness on different behavioral and mental problems which we can mention in these papers:

Lee *et al.* (2015) showed that ACT is a promising therapeutic approach for substance abuse disorders. Levin *et al.* (2016) reported ACT to be effective in the reduction of psychological symptoms. Eilenberg *et al.* (2016), Millstein *et al.* (2015), Niles *et al.* (2014) reported the effectiveness of ACT in the improvement of mental health. Datta *et al.* (2015) recognize ACT as effective in reducing stress intensity and improvement of life quality. Hann and McCracken (2014) reported ACT to be effective in the improvement of bodily and social functions and also in reducing distress and anxiety symptoms and other related indicators of anxiety (such as anxiety sensitivity aspects, tolerance of ambiguity, experience avoidance, the state of worry, etc.). Sianturi, Keliat, and Wardani (2017) and Eilenberg *et al.* (2017) also found out that ACT is effective in reducing anxiety symptoms. Grégoire *et al.* (2017) also recognize ACT to be effective in increasing flexibility and mental health and more interest in education.

Among the research literature, many others emphasize the treatment of different problems using this kind of therapy, but on procrastination and self-efficacy, there is an obvious vacuity; so the present study, knowing the extent of this vacuity and understanding the necessity of studying mothers as the breeders of the next generation, tries to analyze the rate of effectiveness of ACT on procrastination and self-efficacy of mothers.

Research hypotheses are:

Hypothesis 1: ACT-based group therapy is effective on a reduction of mothers' procrastination.

Hypothesis 2: ACT-based group therapy is effective in an increment of mothers' self-efficacy.

2. Method

The research plan of the present study is a single-factor experiment with frequent measurements. The population studied consists of Rey County resident mothers who were selected by multistage cluster sampling among mothers of primary school students in the second area of the Ray County Education Department. The group size was 50 people who consisted of mothers of students of one school who were invited to participate. The aim of the research and the participants' rights were fully explained to them. Participants were assessed once with the research tool at the beginning of the approach as a pretext. 8 sessions of 1 hour and 30 minutes were considered for the

approach and at the end of the eighth session, a second test was carried out. The third test (follow-up test) was carried out a month later. 9 of the participants were dropped because of absence in one of the tests or problems in answering. Therefore, data was collected from 41 of the participants and analyzed. To analyze the results, we used two parts descriptive statistics and inferential statistics. The descriptive part, mean and standard deviation, variance, minimum and maximum scores were obtained and in inferential statistics, the results were analyzed using the Repeated Analysis of Variance Analysis Test.

Table 1: Training sessions (Hayes, Strosahl, and Wilson, 2010; Hayes, Pistorello, and Levin, 2012)

Sessions	Title	Aim	Result	Exercises
First	Beginning of approach	Getting to know, creating good relationships, taking the post-test	Collecting data	-----
Second	Creating creative helplessness	Constructive frustration	Create context for change	Trying to control thoughts and failing to perform
Third	Diffusion and reducing cognitive diffusion	Creating cognitive diffusion	lack of Influence of thoughts and actions on thoughts	White room meditation, river, and leaf technique
Forth	Introducing Decuple Values	Understanding clients with ten universal values	Clarification and prioritization of ten values	Determine three values to work on in a week
Fifth	Examine assignments related to the ten values, establish the acceptance process	Follow up on ten values and acceptance training	Accepting emotions and thoughts as part of existence and life	Body scanning to discover and objectify emotions, determine two other tasks related to the ten values
Sixth	Assessing Values Assignments, Focus Training	Teaching focus and being here and now	Increase focus and reduce attention scatter	Perform mindfulness techniques, identifying two other goals of ten value priorities
Seventh	Assessing assignments related to values and overview and consolidating learning and therapeutic teachings	Consolidate the teachings and eliminate the misunderstandings and teachings that are left unmentioned	Clarification and inclusion of the logic of treatment	Determine three operational goals for ten values
Eighth	Assessment of assignments related to ten values,	Performing the final evaluation completing the treatment process and	Second test data collection and	-----

	termination of treatment, and post-test	saying goodbye to the group members	treatment termination	
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2.1 Research tools

Two tools were used in this research:

- a) Tuckman procrastination questionnaire: This questionnaire is a 16 self-report scale that is designed based on the Likert spectrum. Getting high scores on this scale shows high procrastination. Tuckman reported this questionnaire's Reliability as 0.86. Stöber and Joormann (2001) reported its Cronbach's alpha as 0.92. Kazemi, Fayyazi, and Kaveh (2009) reported its Cronbach's alpha as 0.71.
- b) Sherer's General Self-efficacy Questionnaire (SGSES): This scale has 17 items. Sherer and Maddux (1982), without determining factors and phrases, believe that this scale measures three aspects of behavior the desire to initiate behavior, the desire to expand the effort to complete the task, and the difference in facing obstacles and calculated Cronbach's alpha as 0.76. Asgharnejad *et al.* (2006) reported the overall coefficient of this scale as 0.83 and Zare and Mehmannaevazan (2015), also by using Cronbach's alpha in the pretest reported its reliability as 0.79 and in the post-test reported its reliability as 0.92 which shows its reliability to be an acceptable tool. This structure's justifiability is also confirmed in Barati's research (1997).

3. Findings

3.1 Descriptive findings

Table 2: Comparison of mean and standard deviation scores of first, second, and post-test and self-efficacy test scores in group

Dependent variable scores in the sample group	First test		Second test		Follow-up test	
	Procrastination	Self-efficacy	Procrastination	Self-efficacy	Procrastination	Self-efficacy
Number	41	41	41	41	41	41
Mean	36.46	52.95	44.17	62.51	53.51	60.71
Standard deviation	8.50	7.93	8.06	6.99	7.75	6.45
Variance	72.40	62.94	64.99	48.95	60.15	41.66
Maximum of score	20	33	32	51	28	50
Minimum of score	54	75	63	81	60	80

The participants' age was under 50. 8 of them were under 30 (19.5%), 31 of them between 30 and 40 (75.6%), and two of them between 40 and 50 (4.9%). As for education, 21 of them had below high school diploma (51.2%), 16 of them high school diploma (39%), 3 of

them associate degree and undergraduate (7.3%), and 1 of them had a graduate or higher (2.4%). As for job positions, 4 of them had government jobs (9.8%), 12 of them had free jobs (29.3%), and 25 of them were housewives (61%). As for marital status, 39 of them were married mothers (95.1%), 1 of them was divorced (2.4%), and 1 of them had lost her husband (2.4%). 10 of them were living in their own houses (24.4%), 27 of them were living in rental homes (65.9%), and 4 of them were resident somewhere in different ways (9.8%).

3.2 Inferential findings

The findings of the study were analyzed using ANOVA with repeated measures for both dependent variables in the following tables.

In the test of repeated variance analysis hypotheses due to the lack of factors among subjects, the test of variance-covariance matrix was omitted.

Hypothesis 1: ACT-based group therapy is effective in reducing mothers' procrastination.

The below table is the test of the first hypothesis.

Table 3: Mauchly's spherical test results to examine data related to the procrastination variable

Within subjects effect	Mauchly's W	Approx. Chi-square	df	Sig.	Epsilon		
					Greenhouse-Geisser	Huynh-Feldt	Lower bound
Procrastination	0.18	65.40	2	0.00	0.55	0.55	0.50

Table 3 shows that with a degree of freedom 2 and a significance level of 0.00, the hypothesis of spherical is not established, so we must use a modified variance analysis test by using Greenhouse Geyser epsilon. ANOVA with repeated measure results for the variable of procrastination with no establishment of the hypothesis of spherical is presented in Table 4.

Table 4: Results of ANOVA with repeated measures for the procrastination variable

Source		Type III Sum of squares	Df	Mean Square	F	Sig.	Eta squared
Procrastination	Sphericity Assumed	1496.79	2	748.39	40.84	0.00	0.50
	Greenhouse-Geisser	1496.79	1.103	1356.91	40.84	0.00	0.50
	Huynh-Feldt	1496.79	1.111	1346.87	40.84	0.00	0.50
	Lower bound	1496.79	1	1496.79	40.84	0.00	0.50

The results of Table 4 show that the means are significantly different at the significance level (0.00). In other words, the mean difference was due to the independent variable and

the independent variable was able to explain 50% of the dependent variable (procrastination).

Table 5: ANOVA with repeated measures for examining the mean differences in all three tests related to the procrastination variable

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta squared
Pillai's Trace	0.55	24.61	2	39	0.00	0.55
Wilks Lambda	0.44	24.61	2	39	0.00	0.55
Hotelling's Trace	1.26	24.61	2	39	0.00	0.55
Roy's Largest Root	1.26	24.61	2	39	0.00	0.55

The results of Table 5 show the mean difference in the first, second, and third tests with significance level (0.00) and degree of freedom 2. In other words, according to the results of repeated measures analysis of variance, 55% of the observed difference in the dependent variable (procrastination) was due to the independent variable (acceptance and commitment-based group therapy).

Hypothesis 2: ACT-based group therapy is effective in incrementing mothers' self-efficacy.

The below table is the test of the second hypothesis:

Table 6: The results of Mauchly's spherical test for evaluating data on self-efficacy variables

Within subjects effect	Mauchly's W	Approx. Chi-square	df	Sig.	Epsilon		
					Greenhouse-Geisser	Huynh-Feldt	Lower bound
Self-efficacy	0.50	27.45	2	0.00	0.66	0.68	0.50

It can be deduced from Table 6 that with the degree of freedom 2 and the significance level (0.00), the sphericity assumption is not established and therefore, the modified variance analysis test using Epsilon Greenhouse Geysers should be used. The results of repeated measures analysis of variance for self-efficacy variable with no sphericity assumption are presented in Table 7.

Table 7: Results of ANOVA with repeated measures for the self-efficacy variable

Source		Type III Sum of squares	df	Mean Square	F	Sig.	Eta squared
Self-efficacy	Sphericity Assumed	2115.96	2	1057.98	40.45	0.00	0.50
	Greenhouse- Geisser	2115.96	1.32	1592.72	40.45	0.00	0.50
	Huynh-Feldt	2115.96	1.35	1559.53	40.45	0.00	0.50
	Lower bound	2115.96	1	2115.96	40.45	0.00	0.50

According to the results presented in Table 7, it can be stated that the averages obtained from the three times self-efficacy test were significantly different at the significant level (0.00). In other words, the difference in the averages was due to the independent variable

and the independent variable was able to account for 50% of the dependent variable changes.

Table 8: ANOVA with repeated measures for examining the mean differences in all three tests related to the self-efficacy variable

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta squared
Pillai's Trace		40.14	2	39	0.00	0.67
Wilks Lambda		40.14	2	39	0.00	0.67
Hotelling's Trace		40.14	2	39	0.00	0.67
Roy's Largest Root		40.14	2	39	0.00	0.67

The results of repeated analysis of the variance for examining the mean changes related to the self-efficacy variable in three measurement times show that the mean difference in the first, second, and third tests with significance level (0.00) and degree of freedom 2 is statistically significant. In other words, 67% of the observed difference in mean scores of the dependent variable (self-efficacy) was due to the independent variable (acceptance and commitment group therapy).

4. Conclusion

This research was done to assess the effectiveness of ACT-based group therapy on procrastination and self-efficacy of mothers resident in Ray County. The first hypothesis of the research was tested by ANOVA with repeated measurements and confirmed at alpha level (0.00). This means that group therapy based on acceptance and commitment has the effect of reducing mothers' procrastination. These findings are in line with Valizadeh *et al.* (2013), Lukas & Berking (2018), Lee *et al.* (2015), Levin *et al.* (2016), Eilenberg *et al.* (2016), Milstein *et al.* (2015), Eilenberg *et al.* (2015), Niles *et al.* (2014) and Grégoire *et al.* (2017). Therefore, according to the results of this study, group therapy based on acceptance and commitment can be an effective factor in reducing procrastination and wasting time and talents of individuals and can thus be effective in increasing the likelihood of success and progress of individuals. To justify the findings, we can say that acceptance and commitment is a non-judgmental and balanced sense of consciousness that helps to see and accept emotions and physical phenomena clearly (Brown and Ryan, 2003). Educating mothers who suffer from procrastination makes them accept their physical and psychological emotions and symptoms, and accepting these emotions makes them more adaptable, in other words, we can say that it is accepting a planned and courageous state. It helps them to live aspects of their psychological experience as fully as possible without defense. Acceptance is the experience of feelings, emotions, and thoughts, without any effort to change them. Acceptance is especially needed when the experience cannot be changed and should not be changed. This inconsistent state allows clients to be who they are and where they are and to reduce the tendency to change their thoughts and feelings (Zettl, 2003).

In acceptance and commitment training sessions we try to help mothers with procrastination problems to recognize any kind of action that is useless in controlling unwanted mental experiences or even has an inverse result and accept them without any interior or exterior reaction to removing them. Mothers will be aware of all mental states, thoughts, and behaviors in the present moment and it causes them to be separated from mental experiences; so that they can act independently from these experiences; so mothers will learn how to control their mental experiences about procrastination. ACT tries to give meaning to people's lives by focusing on individuals' values; so mothers with procrastination who had no plan for their daily life, can reduce procrastination by knowing their personal value system and prioritizing them according to the intrinsic importance of personal values for anyone. We can say that the use of ACT can prepare the basis for the reduction of many psycho-social problems in society by focusing on important emotions in society. As is clear, human beings first develop negative emotions before attempting negative actions, followed by individual-social inappropriate thoughts and behaviors. This study showed that proper education of acceptance and commitment can reduce mothers' procrastination.

The findings of the present study confirmed the second hypothesis of the research on the effectiveness of group therapy based on acceptance and commitment to increasing mothers' self-efficacy at the alpha level (0.00). These findings are in line with the results of Datta *et al.* (2015), Hann & McCracken (2014), Sianturi, Keliat, and Wardani (2017), and Eilenberg *et al.* (2017). This means that group therapy based on acceptance and commitment can increase mothers' self-efficacy so that they can engage with life more positively by experiencing self-efficacy and doing away with negative emotions. Acceptance and commitment therapy through the cognitive diffusion process prevents negative self-talk from affecting one's behavior and actions. It also motivates the individual by defining and clarifying his/her personal values and by committing to his or her values to achieve what is important to him/her, thereby enhancing self-efficacy. In this therapy, by focusing on accepting different emotions as unbreakable parts of life and accepting unchangeable conditions, helps them to reduce their inefficiency. The results of this study showed that group education on the concepts of acceptance and commitment therapy can increase the self-efficacy of mothers with children in elementary school.

To summarize, based on previous research literature and the findings of this study, it can be concluded that acceptance and commitment therapy can be effective in reducing procrastination and increasing self-efficacy. Combining these two structures together can lead people on a path of life with greater empowerment and interest.

According to the results of this study, acceptance and commitment therapy can be applied in organizations and institutions active in women's and maternal affairs.

According to the results of this study, psychological and counseling centers can use treatment based on acceptance and commitment to improve self-efficacy and reduce their clients' procrastination.

It is suggested that group therapy based on acceptance and commitment and its effectiveness in reducing procrastination and increasing self-efficacy in the male population also be analyzed. Also, the study of the effectiveness of the mentioned treatment in the community of addicts and students can also be analyzed.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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