

Original Article

Psychological flexibility mediate the effect of early maladaptive schemas on PsychopathologyAhmad Borjali^{1*}, Hamid Bahramizadeh², Hossein Eskandai³, NoorAli Farrokhi⁴*1. Department of Psychology, Allameh Tabataba'i University, Tehran, Iran.**2. Ph.D. Student of Psychology, Allameh Tabataba'i University, Tehran, Iran.**3. Department of Psychology, Allameh Tabataba'i University, Tehran, Iran.**4. Department of Psychology, Allameh Tabataba'i University, Tehran, Iran.***(Corresponding Author: Ahmad Borjali, Department of Psychology, Allameh Tabataba'i University, Tehran, Iran. E-mail: borjali@atu.ac.ir)*

(Received: 8 Nov 2016; Revised: 24 Nov 2016; Accepted: 4 Dec 2016)

Abstract**Introduction:** The present research aims to study the mediation role of psychological inflexibility on the relationship between the schemas domains) and anxiety symptoms.**Methods:** In order to achieve the study objectives, a sample of 230 students has been selected, applying availability sampling. The applying tools included the short-form of Young questionnaire (YSQ-SF), the acceptance and action questionnaire-II (AAQ-II) and Beck Anxiety Inventory (BAI).**Results:** Correlation analysis has shown that there is a relationship between the early maladaptive schemas and anxiety symptoms. Furthermore, the path analysis shows a mediation role of psychological inflexibility between disconnection/rejection (2.37, $p < 0.01$) impaired autonomy and performance (3.19, $p < 0.01$), overvigilance/inhibition (2.90, $p < 0.01$) and the anxiety symptoms.**Conclusion:** The most obvious finding to emerge from this study was that considering some techniques for decreasing psychological inflexibility enhances the outcome of schema therapy. This research managed to answer how the early maladaptive schemas have their effects on the anxiety symptoms in a students' sample. Further work needs to be done to study the relationship between the early maladaptive schemas and psychological inflexibility in the clinical samples.**Declaration of Interest:** None.**Key words:** Psychological inflexibility, The early maladaptive schemas, Anxiety symptoms, Psychopathology.**Introduction**

Anxiety has been among the most widespread psychological disorders in all periods of life namely, childhood, adolescence, youth and old age (1). The anxiety disorder is diagnosed when the anxiety symptoms become recurrent and chronic. The prevalence rate of anxiety disorder among non-clinical population has approximately been between 16 and 28 percent (2). The anxiety symptoms are usually comorbid with other psychological disorders and problems. For instance, 38 percent of schizophrenia, 45 percent of bipolar and 73 percent of depressive patients have also anxiety problems. Moreover, anxiety symptoms decrease the quality of life (3). High prevalence, comorbidity with other disorders and the impact of anxiety disorder on the

quality of life are some factors, which show that recognition of risk factors and anxiety prediction, have been vital issues.

The early maladaptive schemas have been amongst the cognitive-emotional vulnerabilities, which have a great impact on anxiety symptoms. The early maladaptive schemas are formed when people face harmful experiences such as neglect, physical, sexual or emotional abuse in their childhood, or their emotional needs have not been satisfied, due to the inappropriate parenting styles (4) in an incompetent family. A schema has been defined as an inclusive pattern about the relationship between an individual and others. It includes memories, emotions, cognitive and physical sensations. They have been formed at the first stage of life and have been stable during the lifetime (5, 6).

Research shows that the early maladaptive schemas have been correlated with different symptoms of psychological disorders (7). Many groups of patients have shown the specific profile of the early maladaptive schemas, which has confirmed their characteristics (8). For example, Stopa, Teron, Waters and Perston (9) have studied the correlation between the early maladaptive schemas and anxiety and they came to this conclusion that the shame/deficiency schema can explain 21 percent of the anxiety symptoms' variance. Another study shows that the early maladaptive schemas may predict 50 percent of the anxiety symptoms. McGinn, Cukor and Sanderson (10) have studied the relationship of schemas domains and the anxiety disorders symptoms. They found that all the schemas domains are related to the anxiety disorders symptoms. Schmidt, Joiner, Young and Telch (11) have stated that vulnerability to harm or illness, dependence/incompetence and emotional inhibition schemas can explain 34 percent of anxiety. Calvete (12) found that 18 early maladaptive schemas have been related to the trait anxiety in non-clinical samples. However, only unrelenting standards/hypercriticalness and punitiveness schemas have had a relationship with the state anxiety.

Another vulnerability factor, which may lead to anxiety symptoms, is psychological inflexibility, which has been the pivotal factor for Acceptance and Commitment Therapy (ACT) in psychopathology. The inflexible response to the inner experience has been recognized as avoidance experience, which comes from intolerance of internal distress or a strong confidence in the language rules. Psychological inflexibility is harmful because it may lead to limitation of behavior and opportunity reduction for external reinforcement. Research shows that psychological inflexibility deficiency has been related to anxiety symptoms (13, 14, 15, 16). Despite the research that shows early maladaptive schemas are related to anxiety, it has not been mentioned how the early maladaptive schemas may lead to create the anxiety symptoms. The present study is going to answer this question. To find an answer to

this question, early maladaptive schemas are assumed as the developmental basis of psychological inflexibility. Besides, psychological inflexibility is presumed as the mechanism through which early maladaptive schemas create anxiety symptoms. Therefore, the objective of this research is to determine the mediation role of psychological inflexibility in relationship between the early maladaptive schemas and anxiety symptoms.

Methods

The statistical society was the students of Allameh Tabataba'i University. 230 individuals were selected through the availability sampling. The inclusion and exclusion criteria in the study included: age between 20 and 35, with no considerable physical health problem such as, heart disease and multiple sclerosis, not having drug abuse problems, psychosis disorders such as schizophrenia and the relevant disorders, brain damages, and traumatic experience during the last six months such as, divorce or the death of a close person. First, the goals of the study were explained to the participants, and after they announced that they would participate in the study, they were asked to complete the written consent form. Then, the questionnaires were applied. The questionnaires included the short-form of Young questionnaire (YSQ-SF), the acceptance and action questionnaire-II (AAQ-II) and Beck Anxiety Inventory (BAI). To avoid the impact of arrangements and fatigue, the questionnaires were distributed among participants, randomly. During data analysis, 10 individuals were excluded from the study, due to incomplete answers and finally 220 individuals (116 male, 104 female) were analyzed. The age range of participants was between 20 and 35 and the average age was 22.71 years old and standard deviation was 4.39.

The short-form of Young questionnaire (YSQ-SF) . It measures 15 early maladaptive schemas. Schmidt, Joiner, Young and Telch (11) have found alpha coefficients between 0.83 and 0.96 for each schema, which shows the suitable internal consistency of the questionnaire. Ahi, Mohammadifar and Besharat (19) have calculated the internal

consistency of the questionnaire for each schema between 0.69 (self-sacrifice) and 0.83 (dependence/incompetence), in their study of Iranian version of psychometric properties in the student population. Constructive, convergent and differential validity of the Young schema questionnaire have been calculated through the concurrent implementation of anxiety, depression and paranoia anxiety measurement. The Pearson correlation coefficient results show that there is a significant positive correlation between the subjects score in each subscale of the Young questionnaire and anxiety, depression and paranoia.

The acceptance and action questionnaire-II (AAQ-II) . This questionnaire has been built by Bond et al. (20). The questionnaire measures the construction, which refers to diversity, acceptance, avoidance experiences and psychological inflexibility. It seems that AAQ-II measures a concept similar to AAQ-1 but it has a better psychometric stability (20). Abbasi, Fanni, Moloodi and Zarrabi (21) have reported the psychometric stability characteristics in a research. Applying exploratory factor analysis, they have reported two avoidance factors including emotional experience and life control. In addition, the internal consistency of the questionnaire have

been acceptable (0.71- 0.89). The differential validity findings show that avoidance from emotional experiences have had a significant difference between the two clinical and non-clinical groups. However, the life control factor did not show a significant difference.

The Beck Anxiety Inventory (BAI) . This questionnaire has been designed to measure the level of anxiety and includes 21 phrases. Three-point Likert scale has been applied here. Therefore, the anxiety scoring would be between 0 and 63 (22), in which 0 to 7 shows no anxiety, between 8 and 15 shows a low level of anxiety, scores between 16 and 24 illustrate a medium level of anxiety and 26 to 63 numbers present the high level of anxiety. The coefficient of internal consistency is 0.92 and the reliability has been checked and retested in a period of one week. The coefficient of items is also between 0.3 and 0.76.

Results

Table 1 shows the statistical descriptions of the early maladaptive schemas, anxiety symptoms and psychological inflexibility scores, including the mean and standard deviation of the scores.

Table1. statistical description of the research variables' score

Variables	Number	M	SD
Disconnection/Rejection	220	70.13	18.26
Impaired autonomy and performance	220	94.12	20.01
Impaired limitations	220	31.66	4.69
Other-directedness	220	28.56	3.90
Overvigilance	220	31.46	5.96
Anxiety symptoms	220	18.56	3.32
Psychological inflexibility	220	46.38	7.61

Table 2 illustrates the Pearson correlation between early maladaptive schemas, psychological inflexibility and anxiety symptoms. As it can be seen there is a positive and significant correlation between all the early maladaptive schemas and the

psychological inflexibility and anxiety symptoms, except for the correlation between the impaired limitations and anxiety symptoms. The correlation between the psychological inflexibility and anxiety symptoms is also positive and 0.40.

Table 2. The matrix of correlation coefficients between research variables

Variables	1	2	3	4	5	6	7
Disconnection/Rejection	1						
Impaired autonomy and performance	0.36**	1					
Impaired limitations	0.31**	0.41**	1				
Other-directedness	0.40**	0.34**	0.43**	1			
Overvigilance	0.38**	0.41**	0.50**	0.39**	1		
Anxiety symptoms	0.28**	0.30**	0.14	0.21**	0.19*	1	
Psychological inflexibility	0.37**	0.44**	0.18*	0.34**	0.21*	0.40**	1

* P<0.05**P<0.01

In order to study the mediation role of psychological inflexibility in relationship to early maladaptive schemas and anxiety symptoms, the path analysis has been applied. In the following table, the studied model has been presented with the relevant indicators in the model fitness. Figure 1 shows the standard coefficient of the suggested model by the researcher in order to study the mediation role

of psychological inflexibility in the relationship of the early maladaptive schemas and anxiety symptoms. The path coefficients of the applied variables in the model have been shown in table 3. Table 3 presents the load factors and the coefficients of nonstandard path between variables and the amounts and the significant level of each path coefficient.

Table 3. The coefficients of nonstandard path between variables

		Nonstandard coefficients	standard coefficients	Error standard	t	sig
relatedness/rejection	→ psychological inflexibility	0/43	0/37	0/11	3/91	0/01
Impaired performance	→ psychological inflexibility	0/56	0/54	0/09	5/78	0/01
Impaired limitations	→ psychological inflexibility	0/16	0/13	0/10	1/56	0/11
Other-directedness	→ psychological inflexibility	0/13	0/16	0/12	1/6	0/13
Overvigilance	→ psychological inflexibility	0/37	0/37	0/07	4/49	0/01
relatedness/rejection	→ anxiety	0/39	0/31	0/11	3/39	0/01
Impaired performance	→ anxiety	0/48	0/43	0/11	4/32	0/01
Impaired limitations	→ anxiety	0/08	0/08	0/10	1/004	0/315
Other-directedness	→ anxiety	0/14	0/14	0/10	1/50	0/09
Overvigilance	→ anxiety	0/26	0/26	0/05	3/97	0/01
relatedness/rejection	→ anxiety	0/36	0/32	0/09	3/83	0/01

Table 4. The model fitness indicators

fitness indicators	χ^2/df	GFI	NFI	RFI	RMSEA	CFI
Acceptable range	≤ 3	>0.09	>0.09	>0.09	>0.08	>0.08
Observed amount	2.1	0.90	0.90	0.90	0.06	0.92

Table 4 shows the indicators of model fitness. Degrees of freedom for chi-square indicator (χ^2/df) accepts the model fitness, as the number of χ^2/df is less than 3 and it means the data does fit the model.

The root-mean-square deviation (RMSEA) is 0.06, which is less than 0.08 and shows that the model fits the data well. In addition, RFI, NFI, CFI and GFI are greater than the criterion (0.9). To sum up, considering the total

calculated fitness indicators, the fitness of model and data can be approved. To test the impact of the intermediate role of psychological inflexibility on the relationship of early maladaptive schemas and anxiety symptoms, also in order to find the significant level for each predictor variable and criterion, the Sobel test has been applied. The results have been presented in table 5.

Table 5. The mediation role of psychological inflexibility on the relationship of early maladaptive schemas and anxiety symptoms

Predictor variable	Mediation variable	Criterion variable	Regression coefficient, path a	Regression coefficient, path b	Sobel statistics	Significant t level
Disconnection/Rejection	Inflexibility	Anxiety symptoms	0/43	0/36	2/73	0/01
Impaired autonomy and performance	Inflexibility	Anxiety symptoms	0/56	0/36	3/19	0/01
Impaired limitations	Inflexibility	Anxiety symptoms	0/16	0/36	1/45	0/14
Other-directedness	Inflexibility	Anxiety symptoms	0/20	0/36	1/5	0/12
Overvigilance	Inflexibility	Anxiety symptoms	0/31	0/36	2/90	0/01

Table 5 illustrates the non-standard regression coefficient and the Sobel test results to study the mediation role of psychological inflexibility on the relationship of early maladaptive schemas and anxiety symptoms. Considering table 5 results and the Sobel statistics, it can be seen that the significance level of the indirect relationship of variables,

disconnection/rejection, impaired autonomy and performance and overvigilance and anxiety symptoms is significant. Furthermore, the mediation role of psychological inflexibility in the relationship between the impaired limitations, other-directedness and anxiety symptoms is not significant.

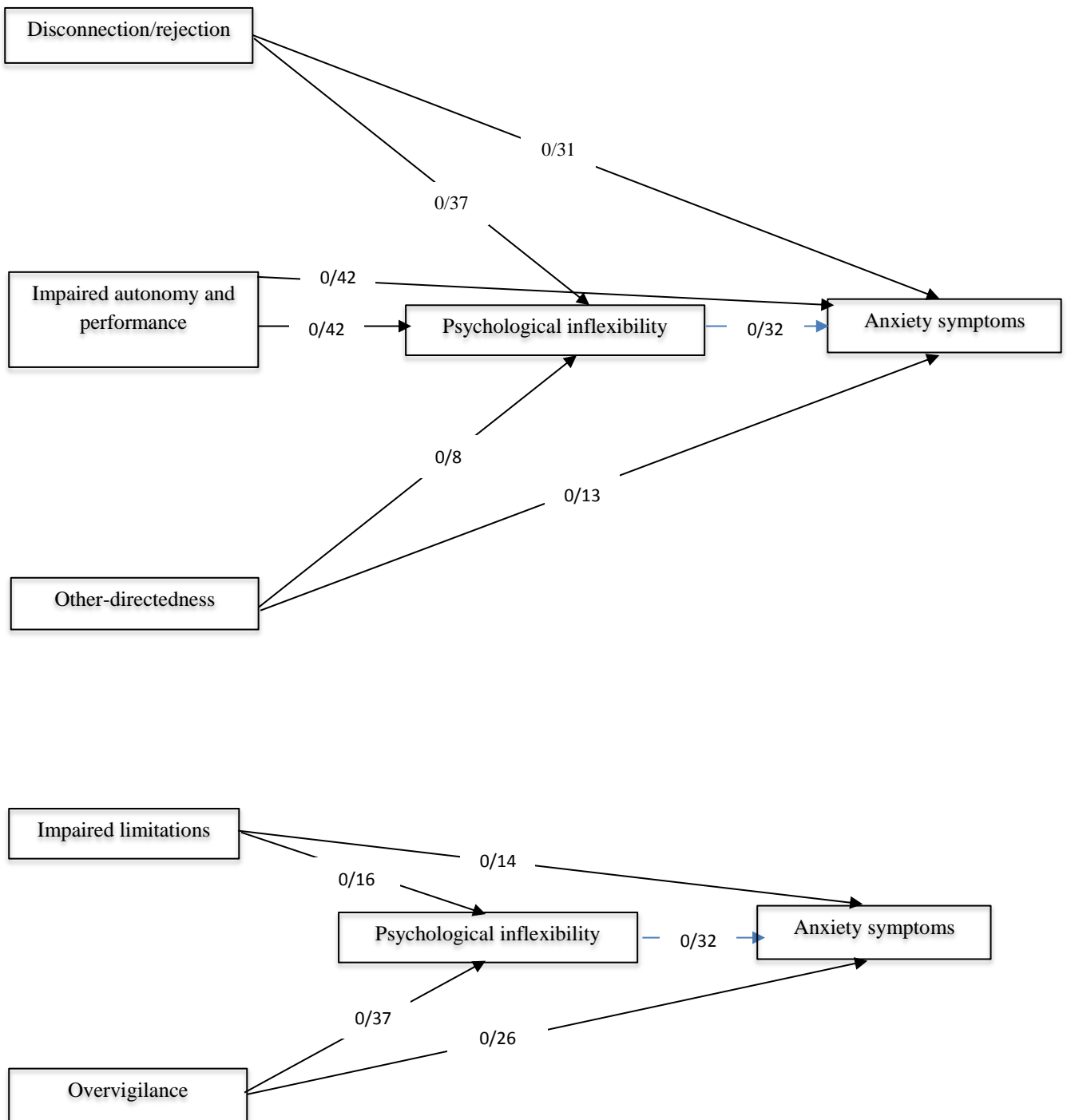


Figure 1. The standard coefficients of the suggested model and the mediation role of psychological inflexibility in the relationship of the early maladaptive schemas and anxiety symptoms

Conclusion

The purpose of this research was to study the mediation role of psychological inflexibility on the relationship of early maladaptive schemas and anxiety symptoms. The findings show that the early maladaptive schemas, psychological inflexibility and anxiety are correlated. Moreover, a path analysis shows that psychological inflexibility mediates the correlation between schema domains including, disconnection/rejection, impaired autonomy and performance and overvigilance, and anxiety symptoms. These results correspond to those of previous studies (9, 12, 26, 28). As an instance Fischer, Smout and Delfabro showed that psychological flexibility mediates the effect of early maladaptive schemas on psychopathology. The findings of the study can explain the following possibilities.

The early maladaptive schemas are the structures of information processing and they prevent any observation and examination of the inconsistent information. This process has been called schematic processing, which leads to the perpetuation of the schemas. Therefore, the accuracy of the schema would be increased since only the consistent information would be considered. Thus, the schema will transform into psychological inflexibility. As the studies have shown, psychological inflexibility has been related to psychopathological symptoms, including anxiety symptoms. Therefore, psychological inflexibility can be considered as the mediator of the early maladaptive schemas impact on psychopathology. The findings of the present study also show that the psychological inflexibility may mediate the relationship between early maladaptive schemas and anxiety symptoms.

Furthermore, another explanation for the relationship between early maladaptive schemas and psychological inflexibility can be the effects of parenting styles on the early maladaptive schemas and psychological inflexibility. The parenting styles (like emotional abuse) are correlated with forming the schemas (i.e. mistrust, abandonment, vulnerability to harm, and inadequate self-control) (29). In addition, parenting styles such

as, powerfulness (cold, distant and disturbing) similarly influences psychological inflexibility.

The studies illustrate that some types of psychological flexibility have formed from the interaction between babies and their caregivers. It is the same as forming the early maladaptive schemas. (30). More specifically, the early maladaptive schemas have an impact on psychopathology through decreasing psychological flexibility. When psychological flexibility is low, the early maladaptive schemas have a great impact on psychopathology, and since psychological flexibility is high, their impact will be low or none.

The present research presents significant explanations for the therapists who work in the areas of acceptance and commitment therapy. On one hand, if psychological flexibility mediates the effects of early maladaptive schemas on psychopathology; interventions that aim to alter schema contents, which do not also increase psychological flexibility, would be unnecessary. On the other hand, if the psychological flexibility is low among the individuals with high schemas, the schema therapy can be a better treatment in comparison with acceptance and commitment therapy. The present research has some limitations, due to selection of students' sample. Therefore, generalizing the results to the clinical groups should be considered, carefully. In general, it is suggested that the future research study the relationship between the early maladaptive schemas and psychological inflexibility in the clinical samples.

Acknowledgement: This Paper is from a PhD thesis (The integrative modeling for symptom of psychopathology according to schema therapy and acceptance and commitment therapy in a clinical sample of adults) of Mr Hamid Bahramizadeh.

References

1. Duchesne S, Ratelle CF. Patterns of anxiety symptoms during adolescence: Gender differences and sociomotivational factors. *J Appl Dev Psychol* [Internet]. Elsevier Inc.; 2016; 46: 41–50.

2. Williams LJ, Pasco JA, Stuart AL, Jacka FN, Brennan SL, Dobbins AG, et al. Psychiatric disorders, psychotropic medication use and falls among women: an observational study. *BMC Psychiatry* [Internet]. 2015; 15: 75
3. Holloway KL, Williams LJ, Brennan-Olsen SL, Morse AG, Kotowicz MA, Nicholson GC, et al. Anxiety disorders and falls among older adults. *J Affect Disord* [Internet]. Elsevier; 2016; 205: 20–7.
4. Boudoukha AH, Przygodzki-Lionet N, Hautekeete M. Traumatic events and early maladaptive schemas (EMS): Prison guard psychological vulnerability. *Rev Eur Psychol Appl* [Internet]. Elsevier Masson SAS; 2016; 66(4): 181–7.
5. Young JE, Klosko JS, Weishaar, M. Schema Therapy: A Practitioner’s Guide. Vol. 160, *American Journal of Psychiatry*. 2003. 2074-NaN-2075 p.
6. Lobbestael J, Arntz A, Sieswerda S. Schema modes and childhood abuse in borderline and antisocial personality disorders. *J Behav Ther Exp Psychiatry*. 2005; 36(3): 240–53.
7. Welburn K, Cristine M, Dagg P, Pontefract A, Jordan S. The Schema Questionnaire—Short Form: Factor Analysis and Relationship between Schemas and Symptoms. *Cognit Ther Res* [Internet]. 2002; 26(4): 519–30.
8. Jovev M, Hon BS, Jackson HJ, Psych MAC. Personality Disordered Individuals. *J Pers Disord*. 2004; 18(5):467–78.
9. Stopa L, Waters A. The effect of mood on responses to the Young Schema Questionnaire: short form. *Psychol Psychother*. 2005; 78 (Pt 1): 45–57.
10. McGinn LK, Cukor D, Sanderson WC. The Relationship Between Parenting Style, Cognitive Style, and Anxiety and Depression: Does Increased Early Adversity Influence Symptom Severity Through the Mediating Role of Cognitive Style? *Cognit Ther Res*. 2005; 29(2): 219–42.
11. Schmidt NB, Joiner TE, Young JEJ, Telch MJ. The Schema Questionnaire: Investigaton of Psychometric Properties and the Hierarchical Structure of a Measure of Maladaptive Schemas. *Cognit Ther Res*. 1995; 19 (3): 295–321.
12. Calvete E. Child Abuse & Neglect Emotional abuse as a predictor of early maladaptive schemas in adolescents: Contributions to the development of depressive and social anxiety symptoms &. *Child Abuse Negl* [Internet]. Elsevier Ltd; 2014; 38(4): 735–46.
13. Gaudiano BA, Schofield CA, Davis C, Rifkin LS. Psychological inflexibility as a mediator of the relationship between depressive symptom severity and public stigma in depression. *J Context Behav Sci* [Internet]. Elsevier Inc.; 2017
14. Martin R, Young J. Schema therapy. *Handbook of cognitive behavioral therapies*. 2010. 317-346 p.
15. Edwards D, Arntz A. An Introduction to Schema Therapy Schema Therapy in Historical Perspective. *Wiley-Blackwell Handb Schema Ther Theory, Res Pract*. 2012;
16. Wilhelm S, Berman NC, Keshaviah A, Schwartz RA, Steketee G. Mechanisms of change in cognitive therapy for obsessive compulsive disorder: role of maladaptive beliefs and schemas. *Behav Res Ther* [Internet]. 2015 Feb [cited 2016 Apr 17]; 65:5–10.
17. Eun J, Won S, Jae S. Relationship between early maladaptive schemas and symptom dimensions in patients with obsessive-compulsive disorder. *Psychiatry Res* [Internet]. Elsevier; 2014; 215(1): 134–40.
18. Ahi GH, Mohammadifar, MA, Besharat, MA. Reliability and validity of Young’s schema questionnaire-short form; 2006; *J Psychol Edu*, 5-20. [Persian]
19. Bond FW, Hayes SC, Baer RA, Carpenter KM, Guenole N, Orcutt HK, et al. Preliminary Psychometric Properties of the Acceptance and Action Questionnaire–II: A Revised Measure of Psychological Inflexibility and Experiential Avoidance. *Beh Ther*. 2011; 42, 676–688.
20. Abbasi E, Fata L, Moloodi R, Zarrabi H. Psychometric properties of Persian acceptance and action questionnaire-II. *Pschol Meth & Modls*. 2012; 65-80.
21. Beck, AT, Steer RA. *Beck Anxiety Inventory Manual*. San Anto: Psychological Corporation. 1990.
22. Kaviani H, Mousavi AS. Psychometric properties of the Persian version of Beck Anxiety Inventory (BAI). *Tehran University Medical Journal*. 2008; 65, 136-140. (Persian).
23. Wetherell JL, Gatz M. The Beck anxiety inventory in older adults with generalized

- anxiety disorder. *J Psychopathol Behav Assess.* 2005; 27(1): 17–24.
24. Rafiei M, Seifi A. An Investigation into the Reliability and Validity of Beck Anxiety Inventory among the University Students. *J Thoug & Behav in Clin Psych.* 2013; 7(27): 43-50.
 25. Fischer TD, Smout MF, Delfabbro PH. The relationship between psychological flexibility, early maladaptive schemas, perceived parenting and psychopathology. *J Context Behav Sci* [Internet]. Elsevier; 2016; 1–9.
 26. Láng A. Machiavellianism and early maladaptive schemas in adolescents. Vol. 87, *Personality and Individual Differences.* 2015.
 27. Walburg V, Chiaramello S. Link between early maladaptive schemas and defense mechanisms Lien entre schémas précoces inadaptés et mécanismes de défenses. *Rev Eur Psychol Appl* [Internet]. Elsevier Masson SAS; 2015; 65(5): 221–6
 28. McCarthy MC, Lumley MN. Sources of Emotional Maltreatment and the Differential Development of Unconditional and Conditional Schemas. *Cogn Behav Ther* [Internet]. 2012; 41(February 2015): 1–10.
 29. Williams KE, Ciarrochi J, Heaven PCL. Inflexible Parents, Inflexible Kids: A 6-Year Longitudinal Study of Parenting Style and the Development of Psychological Flexibility in Adolescents. *J Youth Adolesc.* 2012; 41(8): 1053–66.
 30. Fonagy P, Target M. Attachment and reflective function: their role in self-organization. *Dev Psychopathol.* 1997; 9(4): 679–700.