



# Comparison of Cognitive Flexibility, Resilience and Life Expectancy of Autistic Children's parents with the Parents of Healthy Children

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**Abstract:** *Purpose: The purpose of the study was to compare the cognitive flexibility, resilience and life expectancy of parents with autistic children and the parents of healthy children. Methodology: The method was descriptive with causal-comparative design. The population was all parents of children with autism admitted to the treatment and rehabilitation centers for pervasive developmental disorders (PDD) patients in Tehran in 2017, who were 200 people. Non-probability convenient sampling method was used and 50 mothers with autistic children who had at least high school diploma, willingness, and informed consent to participate in the study were selected as the sample. For the normal-group sample, a sample of 50 people was selected in proportion to the demographic characteristics of the population with disorder. The data were collected using the standard questionnaires of Cognitive Flexibility Inventory (CFI) of Dennis and Vander Wal (2010), Conner-Davidson Resilience scale (CD-RISC) (2003), and Miller Hope Scale (MHS) (1988). Descriptive statistics such as mean and variance and inferential statistics such as multivariate analysis of variance were used for data analysis. Results: The results showed that cognitive flexibility, resilience and life expectancy of autistic children's parents differed from the parents of healthy children and their status in these variables is lower than that of the normal children's parents. Conclusion: According to the results, one can conclude that children's suffering from autism can have negative effects on their parents' psychological status, especially in terms of cognitive flexibility, resilience and life expectancy.*

**Keywords:** *Autism, Life Expectancy, Cognitive Flexibility, Resilience, Parents*

## INTRODUCTION

A proportion of the population of each country always suffers physical and psychological problems for different reasons. According to the World Health Organization (WHO), the current population of exceptional children and adolescents is 500 million. As the world population grows, this number will increase in the future (P. Bos, P et al., 2016).

Autism spectrum disorders (ASDs) are a group of developmental neurodegenerative disorders that overlap in the diagnostic criteria of lack of communication and socialization and limited interest and repetitive behaviors (Ganji et al., 2014). Autism is a developmental disorder characterized by defects in social and communication behaviors and repetitive and limited behaviors (Autism Society on American, 2012). The main cause of this disorder is unknown and the economic, social, lifestyle and parental education status have no role in the incidence of autism. This disorder causes the brain to not function properly in social behavior and communication skills and interferes with the social interaction of children (Richman, 2015). This disorder

disrupts many dimensions the child's family life posing many problems to parents of these children, especially mothers (Lord et al., 2015).

The problems of exceptional children are not limited to educational issues, and the existence of such children can have significant impacts on family functioning and relationships, and can even make changes to the daily routine of their members. The existence of children with autism in a family usually causes irreparable harm to the family. The degree of vulnerability of the family to this problem is sometimes so much that the mental health of the family is severely damaged. The studies show that parents with problematic children experience limitations such as health, deprivation, and high levels of anxiety, stress, and depression compared to the parents of normal children (Daisson, 2000; quoted by Lia et al., 2016). Here, the mothers play a greater protective role for their exceptional child due to their traditional roles of care, so they face more pressure and psychological problems (P. Boss et al., 2016).

Studies show that cognitive flexibility is one of the variables that may differ in mothers of autistic children compared with the mothers of healthy children. What is nowadays considered along with psychopathology due to different environmental stresses such as exceptional children is the issue of cognitive flexibility. The flexibility of individuals is very determinative in the rate of incidence and their level of social performance. Overall, the ability to change cognitive arrangements to adapt to changing impulses is the main element in the operational definitions of cognitive flexibility (Könen et al., 2016). Mothers, who have flexible thinking use alternative justifications, positively rebuild their thinking framework, and accept challenging situations or stressful events as opposed to those who are not flexible (Colvert et al., 2016).

The effect of increasing resilience on the components of quality of life:

In other words, improving parent-child relationships and increasing life satisfaction may be due to reducing parental stress, changing parenting's schemes and attitudes toward disability, and improving parent's skills and behaviors, and the resilience program will increase parental resistance to stress. In addition, a study by HosseiniQomi and Salimi (2012) showed that training resilience had a significant effect on reducing stress and increasing the resilience of mothers.

In addition to psychological flexibility and resilience, life expectancy is another variable that may differ in mothers with autistic children and the mothers of healthy children. One of the most important sources of psychological problems is the loss of life hop (Uno et al., 2015).

Hope is seen as one of the coping resources of human in adapting to the problems and even refractory disease (Getahun et al., 2013). Hope can also be described as a healing, multi-dimensional, dynamic, and powerful healer, with a significant role to play in adapting to loss (Roane et al., 2016).

Hope seems to be required at all stages of life (Zerbo et al., 2015). Hope means the ability to believe in a better feeling in the future. With its penetrating force, hope provokes people's activity so that he can acquire new experiences and create new forces in them.

Hope is considered as an important factor in psychological development too. Hope is a feeling of excitement and thrill experienced when a person expects a better future ahead. Hope, will facilitate passing important hurdles and bumps along the path. Hope emboldens the person to face the situations and find the capacity to overcome those (Christensen et al., 2016). Despair puts the individual in a passive state where he cannot measure and decide in different situations. Despair makes the person vulnerable and defenseless against stressful and defective factors. With pass of time, the person loses all hope replacing it with deep depression. His thinking has the state of all-or-nothing and inflexible, preventing the problem from resolving. Indeed, undermines the problem-solving skills of the individual. Moreover, it renders the person to evaluate his/her experiences negatively and incorrectly and to have worrying consequences for his/her problems (Zarbo et al., 2017).

In fact, childbearing of a child with the above disorder is a big challenge for parents. Studies show very high levels of stress and distress in parents, especially mothers of a child with ASD (Stoke et al., 2016). From this perspective, the behavior of the child affects not just the well-being of the parents but also has other consequences. After the birth of a child with ASDs, many parents experience a "limitation" of everyday life.

They report the disability to do things they used to, have little time for their own needs, and often experience interruption in their activities. Many parents report having lost their old friendships after having a child with ASD. In general, these parents report that their quality of life has been negatively affected in several areas (Christensen et al., 2016).

Hope acts as one of the sources of human coping. Hope is one of the sources of human coping in adaptation to problems and hopelessness is the base of psychological problems. As the base of personality and the source of human life, hope is a healing force for increasing well-being and health (Jane et al., 2015). Research by Connell et al. (2016) shows that the presence of a child in the family means the sequencing of a healthy generation leading to hope, trust and acceptance of difficulties, but the presence of an impotent child with problems leading to the failure of all parents' aspirations and desires will lead to suppression of hope in parents.

A study on the parents of children with autistic dysfunction showed the relationship between hope and self-esteem, family functioning, stress and coping. For mothers, there is a positive relationship between hope and self-esteem as well as between hope, social adaptation, maternal compatibility and family compatibility. Furthermore, the level of mother's hope positively correlates with confrontational coping. If depression is higher in mothers, avoidance (distraction and lack of commitment) is used, but the index modifying this kind of coping is the child's characteristics, and in particular the severity of his misconduct (Lightsey, 2016). In a study on mothers of autistic children, Ogston, Mackintosh & Myers (2015) showed a positive relationship between hope and resilience, as well as between hope, social adaptation, maternal compatibility and family adaptability. Additionally, mothers' level of hope was positively correlated with their family compatibility.

Thus, as mentioned, autism is defined as the worst psychological disorder in children. Childbearing of autistic children is a big challenge for parents. Studies show high levels of stress and distress in parents, especially mothers of a child with ASD. One of the problems of autistic mothers with mothers of normal children is their low level of cognitive flexibility compared to normal children's mothers, as Corch and Hart (2016) showed that the flexibility of the parents with ASD children was lower than that of normal children. Another problem for mothers with autistic children is their resilience. Studies have shown that the resilience of parents of autistic children is lower due to mental pressure compared to the parents of normal children. Additionally, according to the research, life expectancy in mothers with autism tends to be less than that of the normal mothers. Thus, considering the importance of the health of parents with autistic children and the lack of coherent research on the subject, the researcher tried to conduct the study with the following purpose:

Comparison of cognitive flexibility, resilience and life expectancy of parents of autistic children with healthy children's parents

## **B. Methodology**

The research design was descriptive with causal-comparative design, applied in terms of purpose. The population was all parents of autistic children referring to treatment and rehabilitation centers of PDD in Tehran in 2017, who were 200 people and 2,500,000 healthy parents who were made identical to the parents of autistic children. Non-probability convenient sampling method was used - based on authoritative books and research method (Delavar, 2014) and previous research records - and 50 mothers with autistic children who had at least high school diploma, willingness, and informed consent to participate in the study were selected as the sample. For normal sample, in accordance with the demographic characteristics of the population with disorder, a sample of 50 mothers with healthy children was selected. Data collection was done through a field-based library method. The questionnaires used in this research were standard.

The tools used in this research were:

**Cognitive Flexibility Questionnaire:**

The Cronbach's alpha of this questionnaire in Fazeli et al. (2014) was 0.75. The reliability of this questionnaire was calculated 0.85 using Cronbach's alpha in Shafii, Basharpour and Heidari Rad (2016). Saharayi (2014) reported the coefficient of cognitive flexibility questionnaire with Cronbach's alpha of 0.82.

**Resilience scale**

Connor and Davidson (2003) provided this scale with 25 items to measure the power of coping with pressure and threat.

Validity (through factor analysis and convergent and divergent validity) was reported to be 0.86 and reliability (by re-test and Cronbach's alpha) 0.85 by test constructors in different groups (normal and at risk) (Connor et al., 2005; Quoted by Jokar 2007). In Hosseini et al. (2008), the Cronbach's alpha coefficient of the scale was 0.87 and the reliability was 0.73. The validity of this questionnaire in Badri and Hassani (2011) was 0.75 by structural method, in Parsa (2014) 0.82 using criterion validity method and in Mohammadi (2007), it was from 0.41 to 0.64 by examining the correlation of each score with the total score and thee reliability using Cronbach's alpha was 0.89. In Besharat et al. (2007), the reliability of this questionnaire was 0.82 using Cronbach's alpha. Moreover, in Ranjbar, Kakavand, Borjali and Barmas (2011), the reliability of the questionnaire was 0.84 using Cronbach's alpha coefficient.

In the present study, the reliability of this tool was 0.83 using Cronbach's alpha coefficient.

**Life expectancy questionnaire**

The test by Miller &Pavorz (1988) examines 48 aspects of helplessness and hopefulness.

The reliability of the questionnaire was reported to be 80% using Cronbach's alpha. Hosseini (2006) used the criterion questionnaire to determine the validity of this questionnaire. Thus, the total score of the questionnaire correlated with the score of the criterion question and a significant positive relationship was seen between these two ( $r=0.61$ ) and to determine the reliability of the questionnaire using Cronbach's alpha and split-half, the coefficients were 0.90 and 0.89, respectively. Hosseinian et al. (2009) obtained the validity of the questionnaire using criterion question as 0.61 and its reliability as 0.90 and 0.89 using the Cronbach's alpha and split-half, respectively. Agababaei et al. (2004) stated that validity of the present questionnaire s 0.88 using predictive criterion method. Omidvar and Saremi (2002) stated that the validity of the questionnaire as 0.78 using concurrent criterion method, showing the validity of the tool. Hassanzadeh (2002) also obtained the reliability of this questionnaire as 0.87 using re-test method. Gholami, Pasha and Sudani (2009) calculated the reliability of the questionnaire as 0.95 using Cronbach's alpha. The reliability of the questionnaire was confirmed in Delavar (2010) with Cronbach's alpha of 0.87, Dargahi (2007) 0.89 and Sephrian and Jokar (2012) 0.76.

In the present study, the reliability of this tool was calculated 0.88 using Cronbach's alpha coefficient.

**Normality testing**

**Results**

1. Descriptive results including mean and standard deviation (SD)
2. Results related to research hypothesis  
 $H_0$ : Data is normal.  
 $H_1$ : Data is not normal.

**Table 1:** The results of Kolmogorov-Smirnov Test for the research variables

Variable	Z Kolmogorov	Significant level (P)	Results
Cognitive Flexibility of Parents with Autistic Children	1.365	0.060	Normal
Cognitive Flexibility of Parents with Healthy Children	0.875	0.428	Normal
Resilience of Parents with Autistic Children	1.091	0.215	Normal

Resilience of Parents with Healthy Children	0.630	0.822	Normal
Life expectancy of Parents with Autistic Children	1.322	0.072	Normal
Life expectancy of Parents with Healthy Children	0.756	0.617	Normal

According to the results of Table 6, as the level of significance for cognitive flexibility, resilience and life expectancy of parents with autistic and healthy children is greater than 0.05 error ( $P > 0.05$ ), it is concluded that flexibility, resilience and life expectancy for parents with autistic and healthy children have a normal distribution.

Levene's test was used for evaluation of equality of variances of flexibility, resilience and life expectancy. In this case, if the significance level is greater than the error rate of 0.05, the variance of these variables is equal.

**Table 2:** Levene's test to examine the equality of variances

Variable	Levene's test	Degree of freedom 1	Degree of freedom 2	Sig.
Cognitive Flexibility	0.062	1	98	0.804
Resilience	2.483	1	98	0.118
Life expectancy	3.075	1	98	0.052

According to the results of Table 7, as the significance level for the three variables - cognitive flexibility, resilience and life expectancy - is more than 0.05, so their variance is equal.

**Testing research hypotheses**

- **Testing the first hypothesis**

There is a difference between the cognitive flexibility of parents of autistic children and healthy children's parents.

**a. Describing data**

**Table 3:** Descriptive statistics of cognitive flexibility of parents with autistic children and parents of healthy children

Group	Frequency	Mean	SD	Min.	Max.
Cognitive Flexibility of Parents with Autistic Children	50	84.74	14.66	64	124
Cognitive Flexibility of Parents with Healthy Children	50	98.26	12.22	75	125

As seen in Table 8, the flexibility of parents with autistic children has a mean (84.74) and standard deviation (14.66) less than the parents with healthy children - mean 98.26 and standard deviation 12.22 (12).

**b. Data analysis**

In this test (independent t test), if the value of the significance level (P) is smaller than the error value of 0.05 and the absolute value of "t" statistic is greater than the table value of 1.96, the hypothesis is confirmed and there is a difference between the cognitive flexibility of parents with autistic children and the parents of healthy children.

**Table 4:** Independent t-test to examine the cognitive flexibility of autistic children's parents and the parents with healthy parents

T statistic	Degree of freedom	Sig. (P)	confidence interval 95%	
			Lower limit	Upper limit

5.006	98	0.001*	18.88	8.6
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Given the results of Table 9, as the value of the level of significance is equal to 0.001 and smaller than the error value of 0.05, and as the absolute value of “t” statistic is 5.006, greater than the table value 1.96, the researcher's claim is confirmed. Thus, there is a difference between the cognitive flexibility of parents with autistic children and healthy children's parents. Additionally, as the mean upper limit and lower limit in 95% confidence interval are negative, the difference between the two populations is smaller than zero. Thus, the mean cognitive flexibility of the first population (parents with autistic children) is smaller than mean cognitive flexibility of the second population and the cognitive flexibility of parents of healthy children is greater than the cognitive flexibility of parents of autistic children.

- **Testing the second hypothesis**

There is a difference between resilience of parents with autistic children and healthy children's parents.

**a. Describing the data**

**Table 5:** Descriptive statistics of resilience of parents with autistic children and parents of healthy children

Group	Frequency	Mean	SD	Min.	Max.
Resilience of Parents with Autistic Children	50	78.26	16.13	59	94
Resilience of Parents with Healthy Children	50	96.56	12.99	60	91

As seen in Table 10, the resilience of parents with autistic children has a mean (78.26) and standard deviation (16.13) less than the parents with healthy children - mean 96.56 and SD of 12.99 (12).

**b. Data analysis**

In this test (independent t test), if the value of the significance level (P) is smaller than the error value of 0.05 and the absolute value of “t” statistic is greater than the table value of 1.96, the hypothesis is confirmed and there is a difference between the resilience of parents with autistic children and the parents of healthy children.

**Table 6:** Independent t-test to examine the resilience of autistic children'sparents and the parents with healthy parents

T statistic	Degree of freedom	Sig. (P)	confidence interval 95%	
			Lower limit	Upper limit
6.249	98	0.001*	24.11	12.49

Given the results of Table 11, as the value of the level of significance is equal to 0.001 and smaller than the error value of 0.05, and as the absolute value of “t” statistic is 6.249, greater than the table value 1.96, the researcher's claim is confirmed. Thus, there is a difference between the resilience of parents with autistic children and healthy children's parents. Additionally, as the mean upper limit and lower limit in 95% confidence interval are negative, the difference between the two populations is smaller than zero, so the mean resilience of the first population (parents with autistic children) is smaller than mean resilience of the second population. Accordingly, the resilience of parents of healthy children is greater than the resilience of autistic children'sparents.

- **Testing the third hypothesis**

There is a difference between the life expectancy of parents with autistic children and the parents of healthy children.

**a. Describing the data**

**Table 7:** Descriptive statistics of life expectancy of parents with autistic children and healthy parents

Group	Frequency	Mean	SD	Min.	Max.
Life expectancy of Parents with Autistic Children	50	152.32	25.48	132	201
Life expectancy of Parents with Healthy Children	50	182.74	19.17	129	221

As seen in Table 12, life expectancy of parents with autistic children has a mean (152.32) and standard deviation (25.48) less than the parents with healthy children - mean 182.74 and SD of 19.17 (12).

**b. Data analysis**

In this test (independent t test), if the value of the significance level (P) is smaller than the error value of 0.05 and the absolute value of “t” statistic is greater than the table value of 1.96. Thus, the hypothesis is confirmed and there is a difference between the life expectancy of parents with autistic children and the parents of healthy children.

**Table 8:** Independent t-test to examine the life expectancy of autistic children's parents and the parents with healthy parents

T statistic	Degree of freedom	Sig. (P)	confidence interval 95%	
			Lower limit	Upper limit
6.746	98	0.001*	39.37	21.47

Given the results of Table 13, as the value of the level of significance is equal to 0.001 and smaller than the error value of 0.05, and as the absolute value of “t” statistic is 6.746, greater than the table value 1.96, the researcher's claim is confirmed. Therefore, and there is a difference between the life expectancy of parents with autistic children and healthy children's parents. Additionally, as the mean upper limit and lower limit in 95% confidence interval are negative, the difference between the two populations is smaller than zero, so the mean life expectancy of the first population (parents with autistic children) is smaller than mean resilience of the second population. Thus, the life expectancy of parents of healthy children is greater than life expectancy of parents with children with autism.

**Conclusion**

According to the results of the first hypothesis, there was a difference between the cognitive flexibility of parents with autistic children and the parents of healthy children, which seems to have consistency with the studies by Paymard (2016), CheragSahar and Atashpour (2016), Khodadadi and Forouzandeh (2016), HasanAbaadi and Abdollahi (2013), Corch and Hart (2016) Benson et al. (2015), Creep and Cortis (2014), and Martin and Henrik (2013). In explaining this result, it should be stated that mentally retarded children are very slow and weak in learning, and the parents' efforts to train new skills and eliminate inappropriate behaviors of these children do not usually result in desired results. This also affects parents and puts so much mental pressure on them, preventing the family from having its real efficiency such as raising children, having social relationships, employment, leisure, and marital relationships (Ganji, 2013). Regarding cognitive flexibility, as Corch and Hart (2016) showed, the cognitive flexibility of parents of autistic children is lower than that of the parents of ordinary children. Low cognitive flexibility in the family can lead to depression, reduce social acceptance, and ultimately reduce the life expectancy of parents. Cognitive flexibility includes changes in the roles, rules and discipline of the family.

The results of the second hypothesis showed a difference between the resilience of parents with autistic children and the parents with healthy children. This result is consistent with the results of Green (2015), Benson et al. (2015), and Saroey and Kerly (2015). However, it is inconsistent with the results of Johari (2016), Ahrari (2014), Herbert and Gross (2016), and Green (2015) stating no difference in the resilience of parents of healthy and autistic children. In explaining this hypothesis, one can state that parents have many expectations of childbirth, and when a child is born with disabilities, all parents' expectations fall, and it is difficult for parents to adapt to new conditions. During the growth of a child, his physical and mental disadvantages may reveal to his parents and affect the mental health conditions of the parents. As the parents of autistic children have higher levels of resilience, the ability of positive performance in adverse conditions goes higher, and they can be more resistant to suffering from keeping a mentally retarded child, and quality of life in this situation will be higher. Finally, in the third hypothesis, there was a difference between the life expectancy of parents with autistic children and the parents of healthy children. This was consistent with the results of the research by KarimiJozestani, Abedini, Malekpour, Sadeghi and Asliazad (2015), Berjis, Hakim Javadi, Taher, GholamaliLavasani and HosseinKhanzadeh (2013), as well as Herbert and Gross (2016), Ogestone et al. (2015), Friedrich (2014), and Livid & Hastings (2010). In explaining this, one can state that expectations beyond the ability of children and not reaching them cause parents to fail. Thus, the birth of a mentally retarded child in parents who wait during 9 months of pregnancy, and expecting a healthy child with natural characteristics cause them to feel guilty, and failures and deprivations due to the unhealthy nature of the child, which causes sadness and depression. Overall, such conditions can lead to withdrawal, lack of interest in establishing a relationship with the environment, feelings of guilt and worthlessness in the parents, and have negative consequences such as anxiety, aggression, feelings of worthlessness and severe depression in their parents, jeopardizing their health. Thus, the confrontation of parents with the mentally damaged child, the child's need for permanent care, the importance of providing special conditions for growth, the experience of parents' tension due to traditional behaviors, linguistic problems, aggression and lack of self-care skills in this group of children all weaken the normal functioning of the parent. The existence of such problems will lead to an increase in the average of mental disorders in parents of exceptional children, and especially parents with autistic children compared with mothers of normal children.

### **Executive suggestions**

The counselors and therapists are suggested to give importance to changing cognitive flexibility, resilience and life expectancy in addressing the issues of the parents of children with autism to advance counseling and treatment. As the resilience of parents with autistic children is less than that of the parents of normal children, it is suggested that during briefing sessions parents of autistic children are counseled and are acquainted with the resilience and ways to promote it, and the benefits and effects that they can have on their lives. By training from the counselors in educating parents of autistic children in family education in counseling centers, these results can be analyzed these and the education can be transferred. As the cognitive flexibility of parents of children with autism is lower than that of normal mothers it is suggested that, during briefings, the parents of children with autism and hyperactive children be made more familiar with the benefits and effects that cognitive flexibility can have on their lives, and become acquainted with the appropriate ways to develop it. Given the difficulty of autistic children's parents and the effect of this on their health, lawmakers and advocates institutes are suggested to provide solutions such as providing nurses to these children at the end of the week and during the holidays to reduce the effects of long-term care of the disabled child at home.

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