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Reserach Paper: Structured Pattern for Prediction of Parental Stress Based on Self-Differentiation of Parents With Mediating Role of Family Performance With Autistic Child

Monir Kalantar Ghoreishi[1], Hassan Asadzadeh[2*], Khadijeh Abolmaalial Hosseini[3]

1. Department of Psychology, Faculty of Literature, Humanities and Social Sciences, Science and Research Branch, Islamic Azad University, Tehran, Iran.
2. Department of Educational Psychology, Faculty of Psychology and Education, Allameh Tabataba'i University, Tehran, Iran.
3. Department of Psychology, Faculty of Psychology and Social Sciences, Roodehen Branch, Islamic Azad University, Tehran, Iran.

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ABSTRACT

Introduction: According to studies, raising a normal child is already a difficult task for parents. Now, imagine how hard it could be to raise an autistic child. Based on family stress theory, persona, and family resources are considered as main elements which may have effects on the relationship between having an autistic child and positive/negative parenting consequences. The present study aimed to evaluate parental stress modeling based on parents' differentiation of self and mediating role of family performance with their autistic child. This was a correlational study based on structural equations modeling.

Materials and Methods: Statistical population consisted all mothers of autistic children who were studying in the autistic schools in Tehran. In this research, 250 mothers with autistic children were selected by convenience sampling method based on Lohlin method for sample size (2004). Then they were evaluated by multidimensional scale of differentiation of self inventory-revised, family assessment device, and parental stress index-short form. The obtained data were analyzed in SPSS 24 and AMOS 23.

Results: Based on the findings, three variables could predict parental stress (R^2=0.51) and 51% of parental stress are explained by parents' differentiation of self as well as family performance. Also, the indirect way of parents' differentiation of self with mediating role of family performance on parental stress was supported.

Conclusion: Focusing on self-differentiation as well as family performance and emphasizing on parental stress of mothers with autistic children and training coping strategies may have significant effects on decreasing the stress and vulnerability of these parents.

*** Corresponding Author:**
Hassan Asadzadeh, PhD.
Address: *Department of Educational Psychology, Faculty of Psychology and Education, Allameh Tabataba'i University, Tehran, Iran.*
Tel: *+98 (912) 2191318*
E-mail: *asadzadeh@atu.ac.ir*

1. Introduction

Center for Disease Control and Prevention (2012) says that developmental disabilities include a wide range of chronic and lifelong disorders that result from mental or physical defects and affect the daily life experiences, such as language, learning, mobility, self-help, and independent living skills. Autism is considered as a spectrum of complicated developmental disorders that is characterized by delay or difficulties in cognitive, social, emotional, language, sensory and motor aspects (Centers for Disease Control and Prevention, 2012 [1]. The problems like cognitive and behavioral disorders of children, their irritable mood, hyperactivity, obstinacy, eating disorders, failure in self-care, low adjustment functioning, language problems, learning disabilities, can impose limitations on the family such as separation from friends or family members, and in sum need for long-life care may result in parental stress of autistic children [2-9].

Based on family stress theory, existing resources play key roles in adapting the family to stressful situations [10]. In Perry's (2004) Family Stress Model, these resources, in both group of family and personal resources, are considered as important elements that can affect the relationship between having a child with developmental disability and positive and negative parenting outcomes. Thus, self-differentiation which is intrapersonal component with the main core of personality of self, may considered as personal resource with effects on family stressful situations [11]. Bowen (1978) defined self-differentiation as personal abilities for being flexible and reasonable acting, especially in coping to anxiety. Self-differentiation is a personal process in which borders of self are defined clearly [12].

Self-differentiation provides a useful framework for understanding the relational underpinnings of child maltreatment, self-regulation, and parenting [13]. Furthermore, research studies have indicated that higher levels of self-differentiation are associated with parenting processes [13, 14]. In this regard, some researchers argued that deficits in parental relational competence and emotion regulation were associated with lower levels of self-differentiation and impairments in interactive coordination in mother-child relationships. Risk of child maltreatment was greater among mothers who reported lower levels of differentiation. Findings have also suggested that physiological indices have a significant correlation with differentiation of self scores [15].

Other researchers argue that since autistic children's families experience severe stress and distress, in order to improve the adaptation in these families under existing conditions, paying particular attention toward both the physical conditions and psychological problems of child, early interventions for the whole family (because the whole family is involved in this problem) and a good family performance are the best protective factor against stress for them [16]. For these researchers, family performance in comparison to child poor functions strongly predicts parental stress [17].

Others reported that raising autistic child may have negative effects on family performance and relationship of the family [18, 19]. However, other studies report that family poor performance as a risk factor for stress is not higher in families with autistic children and family performance of autistic child is as good as other families [20]. In general, family empowerment and quality of life of parents of children with Autism are influenced by various components of family performance and other family characteristics [21].

One of the models that may explain parents' reactions to this stress is conceptual model of Disability-Stress-Coping developed by Wallander et al. in 1989 [22]. This model distinguishes adaptive family from non-adaptive one in terms of protective factors against stress of caring child with developmental disability in 1996 [23]. Conceptual model of Wallander et al. (1992) used studies on children with chronic disease by Pless and Pinkerton (1975) and added family coping [24] and cognitive evaluation [25]. This model is established within a risk-persistence framework. Risk factors are psychological stress and disease, persistent-inducing factors, interpersonal components, social-environmental components, and stress processing [22].

This model was studied in different pilot studies, including [26] mothers of children with rheumatism [27] mothers of children with cerebral palsy and [28] mothers of children with different disabilities. The present research is based on this model. The conceptual model of this study based on walender et al' s model has shown in Figure 1. In term of relations between given variables, there are many studies in this field. For example, Momeni Kh and Alikhani M. reported that family performance and self-differentiation has negative correlation with stress [29]. In addition, in subscales of self-differentiation, emotional reaction and co-involvement with others have positive relation with stress but there is a negative relation between stress and self-position.

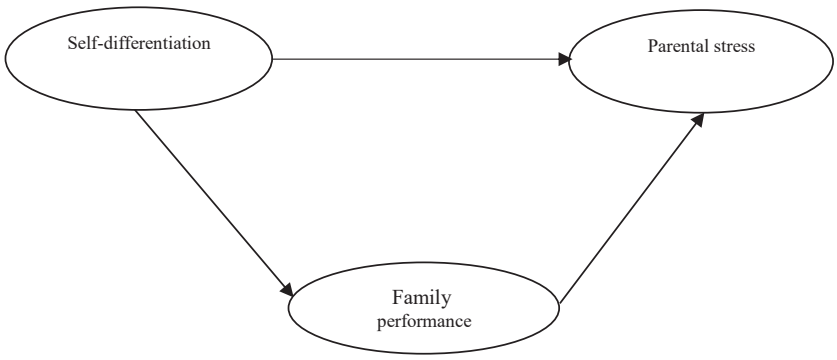

Figure 1. Conceptual model of study

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Krycak R and Marszalek JM reported relations between self-differentiation and stress and psychological distress [30]. On the other hand, some studies suggest negative relation between two variables in addition to low family performance and high parental stress. It is worthy to note that studies about self-differentiation of autistic parents are rare [31-33]. Therefore, the present study aimed to present a structural pattern for prediction of parental stress by self-differentiation of parents and through mediator role of family performance. Our study result may contribute in designing of early intervention for helping families with autistic children to change their negative view and decrease stress.

2. Materials and Methods

Research design

The present research is a fundamental research in terms of its aim, cross-sectional in terms of data gathering method, descriptive in terms of data analysis, correlational in terms of structural equations modeling. It used regression equations model based on covariance approach (CBSEM) by AMOS 23.

Statistical population of this research were all 450 families with autistic children in Tehran that their children were enrolled them in special schools and also their children had a formal deed in Autistic Assembly. Then, with convenience sampling method, 250 consecutive mothers of autistic children were recruited. Number of subjects were determined by Lohlin method (2004) in which there is 30 to 50 samples for each variable [34]. As there were 5 variables, 250 subjects were selected. Measuring tools are described as follows.

Research tools

Differentiation of Self Inventory-Revised (DSI-R)

Original form of this questionnaire was developed by Skowern and Friedlander and final test with 43 items was revised [35, 36]. This questionnaire is as self-report and used as measure of self-differentiation and its focus is on life important relations and interpersonal relationships [36]. Items have 4 subscales: 1. Emotional reactivity; 2. I-position; 3. Emotional cutoff; and 4. Fusion with others. This questionnaire is rated from 1 to 6 (1=it is not applicable for me, 6= it is completely applicable for me). Maximum score of this questionnaire is 276. Scores lower than 276 suggest low self-differentiation. Its content validity was reported as 0.83 by internal consistency [37]. Reliability coefficient reported in foreign studies [35] as 0.88 and in Iran as 0.85 [37].

Family Assessment Device (FAD)

This questionnaire contains 60 questions to examine family performance that was written by Epstein et al. in 1983 based on Mc Master pattern [38]. This questionnaire have two forms of 53 and 45 items. Subjects select one of four choices for each item (completely agree: 1, agree: 2, completely disagree: 3, disagree: 4). Members of family up to 12 years old can complete this questionnaire. High scores suggest unhealthy function. This tool has six subscales: problem solving, communication, role, affective responsiveness, affective involvement, behavior control, and general functioning. All seven scales have considerable internal consistency (Cronbach alpha coefficient of 0.72 to 0.92). Test-retest reliability were satisfactory during one week (0.66 to 0.76). The internal consistency was reported as 0.65 for problem solving, 0.54 for communication, 0.51 for roles, 0.68 for affective responsiveness and affective involvement, 0.64 for behavior control and 0.84 for general functioning [39].

Parental Stress Index-Short Form (PSI-SF)

This tool contains 36 questions from parental stress main form by Abidin (1995) and it measures three subscales of parental distress, parent-child interactional dysfunction and difficult child [40]. In scoring of these indexes, we should note that questions of subscales are not ordered and distributed in whole questionnaire and do not have the same scores. Internal reliability was good in the study by Reitman et al. (2001) that suggests that three-factor model was good enough to describe data [41]. Also, the study by Yeh, Chen, Li, and Chuang (2001) approved internal stability and model fit [42]. In Iran, validity of total score of parental stress and also of parental distress, dysfunctional interaction of parent-child and difficult child were respectively 0.90, 0.80, 0.84 and 0.80. Validity coefficient of test-retest during 18 days for total score and subscales were 0.75, 0.82, 0.73, and 0.71 that suggested its reliability [43].

3. Results

First step

Demographic data (age, marital relationship and job status) of autistic child mothers are presented in Table 1. To analysis data, modeling of structural regression equations was used. Data analysis was done in AMOS 23 and SPSS 24.

Second step

Examining lost and normality of the obtained data. By examining the assumptions using elongation and skewness tests, Kolmogorov-Smirnov and boxes, lost data were identified. Then, the lost data were corrected by Mahalanobis test. Sample size decreased to 232 after correction. After examining normality of data distribution, measured model was approved.

Results of Table 2 shows significant correlation between subscales of parental stress with dimensions of self-differentiation and family performance. According to Table 3, RMSEA equals 0.048 which is less than 0.1 and acceptable. Also, (2.61) is within 3 as well as GFI, CFI, and NFI which are greater than 0.9 so this model is suitable for variables of the research.

Direct assumption: self-differentiation has direct effect on parental stress. According to Table 4, self-differentiation has direct effect on parental stress. Indirect assumption: self-differentiation with mediator role of family performance has indirect effect on parental stress. As Table 5 presents, through indirect path and direct path, given the standard amount (β), non-standard (b) and significance (P), self-differentiation has indirect effect on parental stress by explained variance (R^2).

Third step

According to Table 4, direct path of self- differentiation with mediator role of family performance are observed. On the whole, that variable may predict parental stress that 14% variance of it is explained by the variable and 86% variance of parental stress is explained by other variables out of this research.

Fourth step

Presenting final model of standard variables (Figure 2). As findings show, variables can predict parental stress. Also, indirect path of self-differentiation with mediator role of family performance affects parental stress so based on ML, this model is approved.

Table 1. Demographic data of autistic children mothers

Variable	Categories	No.	%
Age group, y	20-25	12	4.8
	26-35	177	70.8
	36-40	61	24.4
Marital relationship	Relatives	76	30.4
	Non-relatives	174	69.6
Job status	Unemployed	143	57.2
	Self-employed	59	23.6

Table 2. Correlational matrix between parental stress, self-differentiation and family performance

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Problem-solving	12.58	2.63	1													
Communication	15.98	2.76	0.75**	1												
Roles	20.11	2.73	0.78**	0.56**	1											
Affective responsiveness	16.01	3.03	0.24**	0.49**	0.37**	1										
Affective involvement	20.35	3.92	0.21**	0.14*	0.38**	0.34**	1									
Behavior control	30.17	3.65	0.19**	0.23**	0.27**	0.36**	0.41**	1								
Emotional reactivity	44.7	9.21	-0.19**	-0.17**	-0.24**	-0.15**	-0.20**	-0.40**	1							
I-position	45.97	6.79	-0.23**	-0.14**	-0.28**	-0.24**	-0.11*	-0.13**	0.46**	1						
Emotional cut-off	47.85	10.36	-0.20**	0.11**	0.14*	-0.12*	-0.14*	-0.11*	0.44**	0.35**	1					
Fusion with others	40.71	6.74	-0.25**	-0.10	-0.25**	-0.18**	-0.11*	-0.07	0.40**	0.41**	0.38**	1				
Parental distress	36.34	9.67	0.19*	0.15*	0.14**	0.25**	0.21**	0.24**	-0.09*	-0.12**	-0.15**	-0.23**	0.18**	0.57**	1	
Dysfunctional interaction	39.12	11.96	0.15*	0.18**	0.15**	-0.20**	0.20**	0.29**	-0.17**	-0.20**	-0.27**	-0.23**	0.30**	0.24**	0.46**	1
Difficult child	34.75	9.55	0.11*	0.14*	0.13*	0.12*	0.12**	0.18**	-0.21**	-0.17**	-0.16**	-0.17**	0.22**	0.25**	0.58**	0.43**

* Significant level at 0.05.

** Significant level at 0.01 (N=232).

Table 3. Fit indexes resulted from data analysis and variables after two steps correction

Name of Test	Description	Acceptable Range	Before Correction	After Correction
χ^2/df	Relative Chi-square	<3	2.88	2.461
RMSEA	Root mean square error of approximation	<0.1	0.055	0.048
GFI	Goodness of fit index	>0.9	0.922	0.947
NFI	Normed fit index	>0.9	0.893	0.916
CFI	Comparative fit index	>0.9	0.879	0.904
df		-	162	60

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Table 4. Direct estimation using Maximum Likelihood (ML) accuracy

Variable	b	B	R^2	t	P
Self- differentiation on parental stress	-0.72	-0.14	0.10	4.182	0.000
Family performance on parental stress	0.29	0.14	0.04	7.182	0.000

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4. Discussion

The current study aimed to present a structural pattern for prediction of parental stress by self-differentiation of parents through mediator role of family performance. According to our analysis, self-differentiation and family performance had direct and indirect effects on parental stress. This finding is consistent with Momeni and Alikhani [30] who suggested that family performance and self-differentiation had negative correlation with stress, with Krycak. and Marszalek. [29], who reported negative correlation between self-differentiation and stress, and also with Armeli, Gunthert, and Cohen [30] who reported low self-differentiation under stressful conditions, as well as other studies who reported negative relationship between two variables in addition to positive relationship between low family performance and high parental stress [32, 33].

On the whole, not only Autism disorder has effect on mental health of the family but also family conflicts may predicts expression of autistic symptoms. A study found that adjustment capacity of families for coping with their children's illness may contribute in behavioral problems [44]. Moreover, autistic children may affect family members besides their effects on family environment [45]. Therefore, the relationship between child disorder and family performance is a mutual relationship and we should pay attention to family with a member with special needs instead of paying attention to child with special needs. Since children with developmental abnormalities make their families face many challenges, and families may have poor performance due to dynamics of autistic children, it is necessary to address families' developmental functions beyond autistic children as a member of these families.

Parental stress is considered as a natural part of parental experiences and it occurs when parental expectations of their success extend beyond their real resources. Parental stress results from parents' characteristics and quality of their interaction with autistic children [46]. Another study suggests significant relations between self-differentiation and problems in family performance [47].

According to previous studies, lack of self-differentiation has rooted in unhealthy interpersonal relations with families and the others. Self-differentiation and commu-

Table 5. Indirect estimation of model using maximum likelihood accuracy method

Variable	B Direct Path	B Indirect Path	R^2
Self- differentiation performance on parental stress	0.36	0.39	0.14

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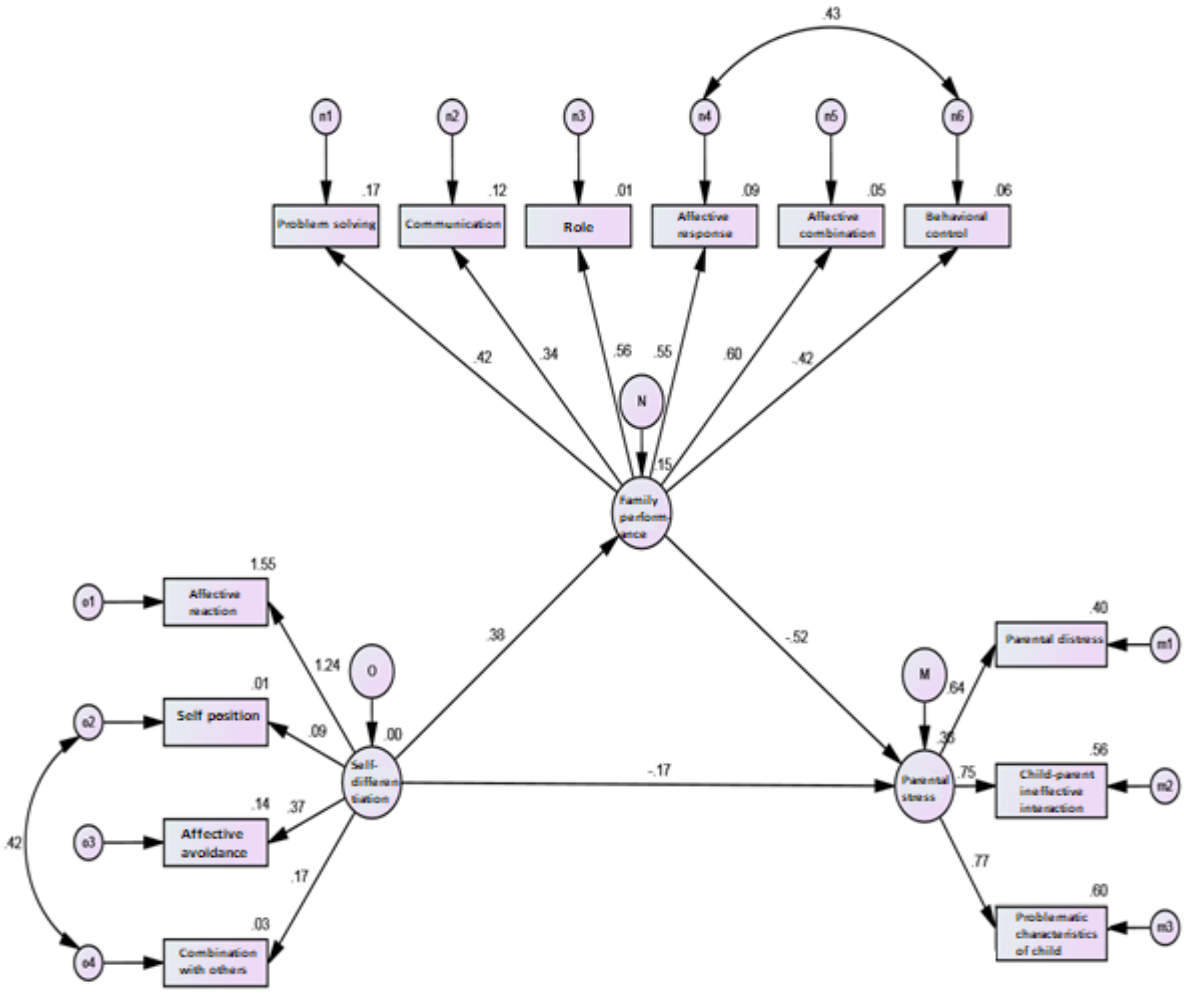

Figure 2. Final tested model with standard predicted variables

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nication between family members have positive effects on psychological health of the whole family. In addition, given the changeable structure of self-differentiation that is a process for achieving attainable goals [48], we can conclude that self-differentiation may play a mediator role in relationship between family communication (as precursor of self-differentiation) and mental health (as consequence of self-differentiation).

As Skowrn suggested, self-differentiation of parents could present a framework to understand parental process [13]. Some researchers indicate the relationship between self-differentiation and parental process [13, 14]. According to one study [15], low self-differentiation in mothers of autistic children may destruct relationship between mother and child and may increase parental stress. Generally, findings of studies suggest that parents of autistic children may face stress and challenges in raising their children [49]. Families with children of developmental disabilities experience stress and distress. To improve adjustment of these families under stressful conditions, we should pay attention to both physical and psychological problems and present early interventions for the whole family because whole family is involved in such stress and good family performance is considered as the protective factor under stress [16].

Families have different performance in terms of preference for needs including economical needs, physical care, helping for convalesce, socializing, affection, self-concepts, educational and job trainings and also expectations of members to play their roles [50]. Anyway, raising autistic child with mental health problems may have effects on family performance [51]. Also, defining self or family attitude towards itself may change with the presence of an autistic child [11].

In summary, whole family pass different developmental stages or circles. Paying attention toward family development is important, because children's mental health problems may result from family growth and personal development of child itself. Two stages of life circle are

when adults have various developmental tasks to become parents [52]. Other three stages are birth of child, raising child, and making child independent. Two final stages are those where adults re-adjust their life when children leave them. In each stage, paying attention toward interaction, functions and perceived social support of family reveals that why it is important to consider children in the context of family and address events in family. Some events like separation, divorce, loss and re-marriage may destruct normal performance of the family [53].

Recent advances in health psychology explore attitude and address stress and mental pressure under stressful situation. In this view, besides identifying stress resources and recommendation for decreasing mental pressure resources, improving personal mental capacities may also contribute in successful coping with stress [54]. Autistic families face stressful factors and various challenges, including unexpected disabilities, annoying behaviors, child behavioral disorder, difficulties in finding services, confusion in finding effective treatment, and problems in interaction to others. Without focus on family and parental training, parental stress and emotional problems are added to ineffective interaction with autistic children and gradually this corrupted interaction gets fixed and inflexible. Instead, comfort and organized family system and mutual interaction may facilitate rich experiences and effective treatment, resulting in lower parental stress.

One of the study limitation is related to our samples that were only urban citizens and mothers. In addition, our study did not consider demographic characteristics as well as health status of other family members. Other limitations of this research were related to its sectional research, reliance on subjects self-reports, low number of references in developmental approach for this topic and ignoring personal differences based on communication and performance of families.

Ethical Considerations

Compliance with ethical guidelines

All ethical principles were considered in this article. The participants were informed about the purpose of the research and its implementation stages; They were also assured about the confidentiality of their information; Moreover, They were allowed to leave the study whenever they wish, and if desired, the results of the research would be available to them.

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Authors contributions

All authors collaborated on reviewing and finalizing of the paper.

Conflict of interest

The authors declare no conflict of interest.

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