

Iranian Children With ADHD and Mental Health of Their Mothers: The Role of Stress

Mohammadreza Babakhanian,¹ Soraya Sayar,² Masaudeh Babakhanian,^{3,*} and Gholamreza Mohammadi⁴

¹Ma, Government Management, Department of Expert Customers Care, Agriculture Bank, Semnan, IR Iran

²Social Worker, Shahid Rajaie Cardiovascular Medical and Research Center, Iran University of Medical Sciences, Tehran, IR Iran

³PhD Student in Psychiatry and Behavioral Sciences Research Center, Addiction Institute, Mazandaran University of Medical Sciences, Sari, Mazandaran, IR Iran

⁴Pediatrics, Velayat Hospital, Semnan University of Medical Sciences, Semnan, IR Iran

*Corresponding author: Masaudeh Babakhanian, Psychiatry and Behavioral Sciences Research Center, Addiction Institute, Mazandaran University of Medical Sciences, Sari, Mazandaran, IR Iran. Tel: +98-1133285659, Fax: +98-2325225141, E-mail: babakhanian.m@gmail.com

Received 2014 December 11; Accepted 2015 April 18.

Abstract

Background: Attention deficit/hyperactivity disorder (ADHD) is a psychiatric disorder that can result in stress for the mother, resulting in poor health.

Objectives: The current study, conducted in 2012, aims to assess stress among forty-six Iranian mothers of ADHD children (Group 1) who were admitted to a psychiatric center in Tehran with forty-six Iranian mothers of normal children (Group 2) in 2012.

Materials and Methods: The Child Symptom Inventory-4 (CSI-4), the child behavior checklist (CBCL) and the parental stress index-short form (PSI/SF) were completed. Data was analyzed using the Levene test and the independent t-test in SPSS Version 18.

Results: With the exception of mood, ADHD children had more problems in attention compared with normal children. As a result, mothers of ADHD children had more stress compared with the controls.

Conclusions: ADHD can impair a mother's mental health by inducing stress. Specific diagnostic and treatment programs should be designed and tailored for the mothers of ADHD children in order to decrease stress.

Keywords: ADHD, Attention, Hyperactivity, Iran, Stress, Treatment

1. Background

Attention deficit hyperactivity disorder (ADHD) in children involves symptoms of inattention and hyperactivity-impulsivity that have persisted for at least six months, are maladaptive and are inconsistent with the child's developmental level (1). One of the strongest predictors of parenting stress in parents of children with ADHD is the impact on parents' mental health (1). Parent-child relationships and mental health are most conflicted when the child shows ADHD (2, 3). Parenting stress leads to aversive psychological and physiological reactions arising from attempts to adapt to the demands of parenthood. These negative feelings arise directly from the parenting role (4). Studies show that the disrupted behavior components of children with ADHD lead to physical and psychological isolation, low reward, complexity of daily life, uncertainty, interpersonal conflict, and deprived personal resources among parents (4, 5). All of these factors add together to place enormous pressure on the parent, simply in the parenting role, and as a result, lead to poor mental health (6-9).

2. Objectives

The aim of this pilot study was to assess parenting stress levels of Iranian mothers of ADHD children in comparison with Iranian mothers of normal children.

3. Materials and Methods

3.1. Participants

This study, conducted in 2012, included participants that were parents of Iranian children who attended a psychiatric center in the south of Tehran. Forty-six mothers of children aged 3 - 12 with a psychiatric diagnosis of ADHD were eligible to participate and randomly recruited into the study. The psychiatric diagnosis of ADHD was confirmed by the psychiatric center based on DSM-IV-TR criteria. A control group of forty-six normal children was also randomly selected. The group of ADHD children was matched with the control group according to age, education, socioeconomic status and family income.

3.2. Inclusion and Exclusion Criteria

Mothers were included in the study sample if: 1) they had children aged 3 - 12 years; 2) they had at least a primary education; and 3) the parents lived together. Exclusion criteria included children with a psychiatric diagnosis of a comorbidity with ADHD such as mental retardation, autism, schizophrenia, major depressive disorder or serious physical disorders such as epilepsy. Normal children were admitted into the control group if: 1) their parents reported that they were not experiencing serious difficulties in managing their child's behavior; 2) they did not meet the DSM-IV-TR criteria for ADHD; and 3) they were not receiving medication to manage behavioral difficulties.

3.3. Study Questionnaires

The Persian version of the Child Symptom Inventory-4 (CSI-4) was applied to assess attention problems in the children of the two groups. CSI-4 is a behavior rating scale that screens for DSM-IV emotional and behavioral disorders, including ADHD, in children between 5 and 12 years of age. CSI-4 scores demonstrate satisfactory test-retest reliability (10). The reliability of the CSI-4 (Cronbach's alpha: $r = 93\%$) was determined in a two week pretest-posttest assessment on 15 children and indicated high reliability of the questionnaire to meet our study aims.

In addition, parents were asked to complete the Persian version of the Parenting Stress Index-Short Form (PSI-SF). The PSI-SF is a 36-item test that is a brief screening measure of parental stress, specifically, stress in the parent-child system (11). The reliability of the CSI-4 (Cronbach's alpha: $r = 95\%$) was determined in a two week pretest-posttest assessment on 15 children and indicated high reliability of the questionnaire to meet our study aims.

3.4. Study Project

Participation in the study was voluntary and confidential. A consent form was obtained from all study participants.

3.5. Data Analysis

Demographic data was analyzed by performing independent t-test and Levene test in SPSS (version 18.0).

4. Results

The study sample consisted of 50% ADHD children (Group 1) and 50% normal children (Group 2). As far as gender, 47 boys and 45 girls were recruited. The mean age of the children in the ADHD group was 6.7 (SD = 5.8) years old, while the mean age of the normal children was 7.02 (SD = 4.8) years old. The children ranged in age from 5 - 12 years.

Group 1 had less attention and more hyperactivity ($t = 14.3$, $df = 88$, $P = 0.01$), worse reinforcement ($t = 8.1$, $df = 88$, $P = 0.05$), lower acceptance ($t = 1$, $df = 88$, $P = 0.01$), lower adaptability ($t = 9.4$, $df = 88$, $P = 0.01$) and more hyperactivity ($t = 11.2$, $df = 88$, $P = 0.05$) compared with Group 2 (Table 1).

The results showed that mothers of group one had less qualification ($t = 8.7$, $df = 88$, $P = 0.01$), less attachment ($t = 6.9$, $df = 88$, $P = 0.01$), limited roles ($t = 5.5$, $df = 88$, $P = 0.05$), more depression ($t = 6.6$, $df = 88$, $P = 0.01$), more social isolation ($t = 6.2$, $df = 88$, $P = 0.05$) and less health ($t = 4.1$, $df = 88$, $P = 0.05$) compared with mothers of group two (Table 2).

5. Discussion

Having a child with ADHD is correlated with significant increases in parental stress. In this pilot study, differences in behavioral problems between Iranian children diagnosed with ADHD and normal children were identified. Further, relationships between mothers' stress and ADHD symptoms were also explored. The study results showed that Group 1 had more problems with attention compared with Group 2. With the exception of mood, the two groups showed significant differences in attention and its components.

Another recent study of 26 preschoolers, ages 4 - 5 years showed that ADHD is a serious psychiatric disorder that needs specific attention in treatment programs (12). This may also affect the way in which parents view their competence as parents and the subsequent stress related to their parenting roles. The differences we observed in the components of attention among ADHD children compared with normal children in this study are subjects for further studies. The impaired aspects of attention among ADHD children in this study have important clinical and treatment implications and could contribute to lowering their efficacy in managing everyday life, play and/or schooling. Therefore, ADHD in the children in this study should be treated and managed by implementing appropriate treatment programs.

Additionally, the study results confirmed that mothers in Group 1 had more stress compared with mothers in Group 2. A study of the relationship between family functioning and ADHD symptoms in an Australian sample showed, compared with controls, parents of children screening positive for ADHD reported more emotional impact and less parental warmth (13).

Inattention, hyperactivity and impulsivity among the mothers of Group 1 likely played the role of a barrier against their mental health and resulted in stress. Mothers of ADHD children should be educated about the na-

Table 1. Variance Differences of Scores of Children in Attention

Characteristics	Levene Test ^a		Independent T-test		
	F	Sig	t	df	Sig
Inattention/hyperactivity					
Variance equity	0.12	0.81	14.3	88	0.01
Variance inequity	-	-			
Reinforcement					
Variance equity	1.0	0.39	8.1	88	0.05
Variance inequity	-	-			
Mood					
Variance equity	0.68	0.42	7.4	88	0.326
Variance inequity	-	-			
Acceptance					
Variance equity	0.89	0.38	1.0	88	0.01
Variance inequity	-	-			
Adaptability					
Variance equity	0.13	0.93	9.4	88	0.01
Variance inequity	-	-			
Hyperactivity					
Variance equity	2.6	0.09	11.2	88	0.05
Variance inequity	-	-			

^aLevene Test for Variance Equity.

ture of ADHD. A study of the effect of parent training programs on children with ADHD showed that mothers of 18 children with ADHD and six with pervasive developmental disorders, who underwent a parent training program, had significantly decreased parenting stress (14).

Another study showed that the role of psychosocial factors in perpetuating and predisposing children to the development of ADHD symptoms has been neglected within mental health. Clinicians, when told that a child had a diagnosis of ADHD, were found to underestimate the presence of psychosocial factors, and were less likely to ask about the effects that this issue had on parents (15). The implications of these findings both for clinicians, and at a policy level, are discussed.

Harrison and Sofronoff proposed that interventions for ADHD should not only be aimed at children's behavior but should also pay equal attention to their mothers (16). This can be done by screening their mothers for delivery of the necessary interventions.

This study had several limitations. First, it was a cross-sectional study. Second, the study was limited to one center in Tehran. For the future, conducting longitudinal stud-

ies and recruiting more centers in the Iranian community.

Acknowledgments

The authors would like to thank all mothers who participated in this study.

Footnotes

Authors' Contribution: Mohammadreza Babakhanian designed and conducted the study. Soraya Sayar did data entry and analyzed the data. Masaudeh Babakhanian and Gholamreza Mohammadi contributed to data collection and writing the manuscript. All authors read and approved the content of the final manuscript.

Declaration of Interest: None.

References

1. Anastopoulos AD, Guevremont DC, Shelton TL, DuPaul GJ. Parenting stress among families of children with attention deficit hyperactivity disorder. *J Abnorm Child Psychol.* 1992;20(5):503-20. [PubMed: 1487593].

Table 2. Variance Differences of Scores of Mothers in Attention

Characteristics	Levene Test ^a		Independent T-test		
	F	Sig	t	df	Sig
Qualification					
Variance equity	0.328	0.572	8.7	88	0.01
Variance inequity	-	-			
Attachment					
Variance equity	0.708	0.405	6.9	88	0.01
Variance inequity	-	-			
Role limitations					
Variance equity	5.26	0.28	5.5	88	0.05
Variance inequity	-	-			
Depression					
Variance equity	0.000	0.987	6.6	88	0.01
Variance inequity	-	-			
Social isolation					
Variance equity	0.23	0.863	6.2	88	0.05
Variance inequity	-	-			
Health					
Variance equity	4.11	0.43	4.1	88	0.05
Variance inequity	-	-			

^aLevene Test for Variance Equity.

- Baker DB. Parenting Stress and ADHD A Comparison of Mothers and Fathers. *J Emotion Behav Disorder*. 1994;**2**(1):46-50.
- Van den Bergh BR, Marcoen A. High antenatal maternal anxiety is related to ADHD symptoms, externalizing problems, and anxiety in 8- and 9-year-olds. *Child Dev*. 2004;**75**(4):1085-97. doi: [10.1111/j.1467-8624.2004.00727.x](https://doi.org/10.1111/j.1467-8624.2004.00727.x). [PubMed: 15260866].
- Podolski CL, Nigg JT. Parent stress and coping in relation to child ADHD severity and associated child disruptive behavior problems. *J Clin Child Psychol*. 2001;**30**(4):503-13. doi: [10.1207/S15374424JCCP3004_07](https://doi.org/10.1207/S15374424JCCP3004_07). [PubMed: 11708238].
- Fischer M. Parenting stress and the child with attention deficit hyperactivity disorder. *J Clin Child Psychol*. 1990;**19**(4):337-46.
- Soltanifar A, Moharreri F, Soltanifar A. Depressive and Anxiety Symptoms in Mothers of Children with ADHD Compared to the Control Group. *Iran J Psychiat*. 2009;**4**(3):112-5.
- Sanaei Kamal S, Babapor Kheyradin J, Abdol Mohamadi K, Fathi A, Dolatyari N. Comparing the Mental Health of Children's Mothers With ADHD And Normal Children' Mothers In Hamadan. *Eur Online J Nat Soc Sci*. 2013;**2**(25):449-60.
- Mirzaaghas R, Kohani Y, Tara F. Maternal Anxiety and Attention Deficit Hyperactivity Disorder (ADHD) in Children. *J Midwifery Reprod Health*. 2014;**2**(4):233-7.
- Sprafkin J, Gadow K. An observational study of emotionally disturbed and learning-disabled children in school settings. *J Abnorm Child Psychol*. 1987;**15**(3):393-408. [PubMed: 3668086].
- Achenbach TM. Manual for the child behavior checklist/4-18 and 1991 profile. Burlington, VT: University of Vermont Department of Psychiatry; 1991.
- Reitman D, Currier RO, Stickle TR. A critical evaluation of the Parenting Stress Index-Short Form (PSI-SF) in a head start population. *J Clin Child Adolesc Psychol*. 2002;**31**(3):384-92. doi: [10.1207/S15374424JCCP3103_10](https://doi.org/10.1207/S15374424JCCP3103_10). [PubMed: 12149976].
- Mahone EM, Crocetti D, Ranta ME, Gaddis A, Cataldo M, Slifer KJ, et al. A preliminary neuroimaging study of preschool children with ADHD. *Clin Neuropsychol*. 2011;**25**(6):1009-28. doi: [10.1080/13854046.2011.580784](https://doi.org/10.1080/13854046.2011.580784). [PubMed: 21660881].
- Cussen A, Sciberras E, Ukoumunne OC, Efron D. Relationship between symptoms of attention-deficit/hyperactivity disorder and family functioning: a community-based study. *Eur J Pediatr*. 2012;**171**(2):271-80. doi: [10.1007/s00431-011-1524-4](https://doi.org/10.1007/s00431-011-1524-4). [PubMed: 21743986].
- Motoyama K, Matsuzaka T, Nagaoka T, Matsuo M. [The effect of parent training program on children with attention deficit/hyperactivity disorders and/or pervasive developmental disorders]. *No To Hattatsu*. 2012;**44**(4):289-94. [PubMed: 22844759].
- Richards LM. It is time for a more integrated bio-psycho-social approach to ADHD. *Clin Child Psychol Psychiatry*. 2013;**18**(4):483-503. doi: [10.1177/1359104512458228](https://doi.org/10.1177/1359104512458228). [PubMed: 23104966].
- Harrison C, Sofronoff K. ADHD and parental psychological distress: role of demographics, child behavioral characteristics, and parental cognitions. *J Am Acad Child Adolesc Psychiatry*. 2002;**41**(6):703-11. doi: [10.1097/00004583-200206000-00010](https://doi.org/10.1097/00004583-200206000-00010). [PubMed: 12049445].