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PARENTING PRACTICES IN MOTHERS OF CHILDREN WITH ADHD: ROLE OF STRESS AND BEHAVIORAL PROBLEMS IN CHILDREN

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The study investigated the determinants of parenting stress and practices in the mothers of children with ADHD in relation to the behavioral problems in children. Sixty children with ADHD of 4-12 years were taken from schools and child psychiatry units of government and private hospitals in Lahore. Children's diagnosis for ADHD was confirmed through DSM-IV ^{TR} criteria and Conners' Rating Scale (1997). Mothers of these children rated behavioral problems of children on Child Behavior Checklist (Achenbach & Edelbrock, 1991). To measure stress and parenting practices, Parenting Stress Index (Abidin, 1995) and Parent Questionnaire (Doyle & McCarthy, 2002) were translated in Urdu which showed high reliability (α = .87 & α = .73).The results suggested significant positive correlation between child behavioral problems, maternal stress and parenting practices. Parenting stress and child behavioral problems emerged as strong predictors of harsh/physical discipline which was negatively correlated with appropriate and consistent discipline in mothers. Child's behavior was the strong predictor of maternal stress. The results have been discussed in specific social context of Pakistan. Implications targeted the need of the intervention programs for children with ADHD and their mothers.

Keywords: parenting practices, ADHD, parenting stress, behavioral problems

Attention Deficit Hyperactivity Disorder (ADHD) is one of the commonly diagnosed psychiatric disorders in children, as Western researches had reported a prevalence of 10-20% in school-going children (Barkley, 1998). Statistical figures are not available for Pakistan; however, a prevalence of 8.1% had been mentioned in India by Malhi and Singhi (2000) among children referred to a psychiatric health care services. Children with ADHD experience poor attention span, hyperactivity and impulsivity, or both at inappropriate age levels (APA, 2000). It is highly heritable, diagnosed more in boys than girls, and symptoms negatively influence the child's social environments, yielding severe consequences to academic achievements, peer relationships, and parent-child affairs as concluded by Hinshaw (2000).

High rates of comorbidity had been found for ADHD with the disruptive behavior disorders (Biederman, Newcorn, & Sprich, 1991). Moreover, comorbidity of ADHD with externalizing (disordered emotions) and internalizing (dysfunctional) behaviors had also been identified, which decreases the effectiveness of treatment and increases the likelihood of adverse outcomes (Pliszka,

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Carlson, & Swanson, 1999). Externalizing behaviors of such children could probably explain the quality of parent-child interactions; as in families of children with ADHD, assertive parent-child interactions were better justified by the presence of comorbid ODD symptoms as compared to ADHD alone (Barkley, Fischer, Edelbrock, & Smallish, 1991).

The genetic and neurobiological basis of ADHD had been identified and sustained by the empirical studies (Barkley, 1998; Tannock, 1998). It was indicated that mother's health problems that might affect the prefrontal area of fetal brain through critical stages of its development, could also be related to ADHD (Biederman & Faraone, 2002). Little evidence had been found for children's environ- mental conditions contribution as a factor to ADHD but a few of these, like family functioning and mental health of parents, seemed to play an important role in determining the developmental course and its consequences for children with the ADHD (Barkley, 1998; Weiss & Hechtman, 1993). Studies had consistently demonstrated that the combination of unstable family temperaments, poorer levels of child intellectual functioning, parent's mental health issues, particularly depression and ADHD, and intimi-dating parent-child relationships could predict adverse psychosocial aftermaths for children with ADHD, later in adolescence and adulthood stages of development (Barkley, Anastopoulos, Guevremont, & Fletcher, 1992; Barkley et al., 1991; Biederman et al., 1995; Weiss & Hechtman, 1993). In the modern series of reciprocal parent-child interactions, as the behavior of each participant affecting the behavior of other. Conforming to the expectat-ions of parents becomes difficult due to inattention, impulsivity and over activity among youngsters, and at the same time it is hard for parents to keep up assurance in the efficacy of their own capability to exercise suitable parenting practices when the preferred results for child's behavior are not being achieved. Thus, parents 'learn' that they are unable to deal with or control their child (Holden & Miller, 1999).

ADHD in child may have adverse effect on parental mental health also; mothers of children with ADHD mostly experience higher levels of stress in their parenting responsibilit-ies (Anastopoulos, Guevremont, Shelton, & DuPaul, 1992; Johnston & Mash, 2001; Kazdin & Whitley, 2003). This stress can influence the ability of the parent to utilize constructive parenting practices to bring out supportive behavior from their child (Dix, 1991); possibly because of a stress-induced insufficie-ency in maternal concentration and attention (Wahler & Dumas, 1989). In addition, symptoms of hyperactivity, impulsivity, and inattention in children with ADHD particularly add to demanding and difficult parenting experiences, increasing the possibility of deficits in some of the parenting variables such as involvement, warmth, and secure attachment (Olson, Bates, Sandy, & Lanthier, 2000; Stormshak, Bierman, Mc-Mahon, & Lengua, 2000; Whalen & Henker, 1999). Dysfunctional parenting may fairly be an effect of the problems of raising a child with ADHD, however it may also serve as a causal factor in the emergence of comorbid disruptive behavioral disorders (Johnston & Mash, 2001). Most often, children with opposit-ional and conduct problems have

families demonstrating coercive dealing styles, contradictory discipline, lesser of parental involvement, and lack of encouraging and affectionate relations between parent and child (Fletcher, Fischer, Barkley, & Smallish, 1996). As Belsky (1984) has mentioned that characteristics of the individual parent, the child, environmental situation within which the parent-child relationship is rooted, can directly affect parenting practices and styles. Children with ADHD often happen to be involved in persistently contradictory relationships with their parents; according to Carr (1999), it is very hard for young people with characteristics of inattention, impulsivity and over activity to conform to parental viewpoint.

ADHD also seems to be associated with significant functional impairments in children. The disorder exerts adverse impact not only to the affected individual but also to his or her family and work/ learning place. Family atmosphere is negatively influenced by child's ADHD and may have adverse impact on parent's mental health. Often experience heightened levels of stress. According to Nigg and Hinshaw (1998), level of depressive symptoms among mothers of ADHD children is higher than those of control group. Moreover, Tripp (2003) identified that greater depressive symptomology in mothers of ADHD children was linked with locus of control. Higher levels of parenting stress for mothers had been predicted by beliefs of reduced efficacy, and contradictory control strategies in parent-child interaction. While emphasizing the effectiveness of parenting practices used by mothers of children with ADHD, McLaughlin and Harrison (2005) investigated the associations among child behavioral characteristics, certain demographic variables and parental attributes of understanding and examined the use of less effective parenting practices to be related to the severity of child disruptive behavior, age, single child status, lower parental expertise and capabilities, and greater social isolation.

Most of the parents and people are unaware of the symptomology and consequences of childhood disorders, especially ADHD. The existing research in Pakistani context had looked at the relationship of ADHD with the academic performance, as Loona and Kamal (2004) focused academic performance and social behavior of ADHD and non-ADHD children in schools. The results indicated significant differences in academic performance and school social behavior among children with ADHD than control group. In another cross-sectional study, local experience of ADHD was reported in a review study by Qureshi and Thaver (2003) with a sample of twenty six children diagnosed with ADHD. Data regarding age, gender, age onset, birth and developmental history, comorbid conditions revealed a ratio of 3:1 in boys than girls with ADHD, and 45% of the boys were eldest of all siblings. Almost 54% children were also experiencing mental retardation. A thorough history concerning prenatal, peri-natal, and post-natal period exposed the potential factors for minimal brain damage and its etiological relationship with ADHD. Risk factors related to mothers in the study comprised eclampsia and abnormal labor or delivery. Neonatal situation involved prematurity, low birth weight, and certain diseases such as jaundice and seizures. A history of late milestones for motor and language abilities had been reported in 61.5% of the children.

Scarce research in Pakistan has investigated this issue; therefore, in this scenario, current study focused mothers' parenting practices with their children with ADHD in Pakistani socio-cultural set up. Another focus was mothers' mental health that was also explored in terms of stress they experience in their parenting role while raising youngsters with attributes of inattention, impulsivity and over-activity, which might affect their parenting practices. In Pakistani family set up, mothers are usually considered responsible for the training and behavioral management of their children because fathers, most of the time, stay outside home being the bread winners for their families. Moreover, being mother of an abnormal or problematic child is a stigma that such women have to face in our society. They are held responsible for bearing a child with biological and behavioral problems. They face lack of family and social support that forces them to restrict their social life to their homes; almost away from all social activities and situations due to the impulsive and frequently exhibited poor behavior by their children. The attributions to be found for those behaviors by others increase mothers' social isolation along with decreasing their sense of competence in their parenting responsibilities, resulting in stress and depression. Burdened with bringing up an ADHD child, mental health and psychological well-being of these mothers is usually neglected, which consequently leads to more dysfunctional parenting. In present study, behavioral problems of ADHD children and mothers' stress along with demographic characteristics, of both mothers and children, are studied as determinants of parenting practices.

Objectives

The study focused the following objectives:

1. To observe the severity of behavioral problems in children with ADHD.
2. To evaluate the maternal stress and parenting practices mothers use with ADHD children.
3. To determine the impact of child behavioral problems and parenting stress on the parenting practices in mothers of ADHD children.
4. To explore the impact of demographic characteristics of children and mothers on parenting practices of mothers like age, education, family size (number of children in the family), family type (nuclear vs. joint) and socio economic status.

Hypotheses

1. Severity of child behavioral problems with ADHD would be positively related with stress level of their mothers.
2. Behavioral problems in children and perceived stress in mothers would be negatively associated with parenting practices used by mothers of children with ADHD.
3. There would be reciprocal relationships among child behavioral problems, parenting stress, and parenting practices in mothers of children with ADHD.
4. Mothers' age, education level, family income, family size and family system would determine their stress level and parenting practices.

Method

Sample

Sixty children, 55 boys and 5 girls with age range of 4 to 12 years, (M = 7.7, SD = 2.3), were identified from different schools, psychiatry departments of hospitals and mental health clinics in Lahore through referrals by teachers, psychiatrists, and psychologists. Fourteen schools, both private and government, in different areas of Lahore were contacted to identify 50% children suspected of ADHD; rest of the 50% children were drawn from outpatient psychiatry departments of four hospitals in Lahore: Mayo Hospital, Sir Ganga Ram Hospital, Children Hospital and Shalamar Hospital. It was confirmed that children included in the sample might not have any psychiatric disorders other than ADHD with or without a comorbid diagnosis of ODD or CD. Yet, some children with ADHD having mild learning difficulties or a mild mental handicap were not excluded from the sample of the study.

Second segment of sample included mothers of these children with ADHD, having age range of 24 to 40 years (M = 31, SD = 7.74), with at least middle level of education and having no history of any psychiatric disorder. They were approached in the outpatient departments of psychiatry in hospitals, schools or at their homeplaces according to their convenience, with the help of concerned departments. The informed consent was taken from them to participate in the current study.

Instruments

After conducting brief interview with school teachers or psychiatrists or psychologists about child's hyperactivity or inattention; children were tested on the diagnostic criterion for ADHD according to DSM-IV ^{TR} (APA, 2000) to confirm ADHD.

1. Conners' Rating Scale-R (CRS-R; Conners, 1997)

CRS-R is widely used as comprehensive checklist for the diagnosis and screening device for ADHD in children of age 3-12 years, in home and school settings. For present study, Short Form of Parent Rating Scale-R (28 items) was used in which T- Score of 65 and above on ADHD index was an indicator of clinically significant ADHD symptoms. It has 4 sub-scales: Oppositional, Inattention, Hyperactivity and ADHD Index. Mothers responded while keeping in view their child's behavior during the past month on 3-point rating scale; 0 (Never) to 3 (Very Often) point. The reliability of CRS-R in terms of internal consistency coefficient ranged around .75 to .90 (Conners, 1997); for the present sample Cronbach's alpha reliability coefficient was satisfactory (α = .58).

2. Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991)

CBCL is a measure of overall severity of behavioral problems in children of 4 -18 years. For present study, it was administered through an interview with a parent, mother, who rated 113 problem behaviors on 3-point rating scale, based on the observed behavior of the child in the last six months. CBCL generated scores of 8 different behavioral domains: Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Attention Problems, Delinquent Behavior, Aggressive Behavior and Thought Problems, and three broadband subscales: Internalizing,

Externalizing and overall behavioral problems. For present study, raw scores were used for statistical analysis. The reported psychometric properties of the scale were quite satisfactory; the inter-rater reliability ranged from .93 to .96 (Achenbach & Edelbrock, 1991), and for the present study sample alpha coefficient was highly significant (α = .87).

3. Parenting Questionnaire (PQ; Doyle & McCarthy, 2002)

The Parent Questionnaire (PQ) is based on Parenting Practices Scale that was originally developed by Strayhorn and Weidman (1988). It contains 22 items with a response category of 5-point rating scale. It measures three types of parenting practices: Appropriate / Consistent Discipline, Warmth / Involvement and Harsh / Physical Discipline; two items are used to measure inter-parental consistency. Higher scores in any scale is an indicative of the intensity of that parenting practice. For present study, raw scores for three types of parenting practices: Appropriate/Consistent Discipline, Warmth/Involvement and Harsh /Physical Discipline, were used for statistical analysis. The PQ had satisfactory reliability and validity. The reported average absolute value of the item-total correlation was .36 with the Cronbach's alpha coefficient of .78 and the test-retest reliability after 6 months was .79, (Doyle & McCarthy, 2002).

For the current study, PQ was translated into Urdu while using the back translation procedure. After getting the suitable translations of the items from 3 bilingual experts, the best suitable statements were selected. The selected items were given to 3 experts of PhD level from English department of GC University to get it translate back in English. In the next step, a pilot study was conducted to compare the content and conceptual uniformity of English and Urdu versions with 10 bilingual mothers who were administered English and Urdu versions over a lapse of 10 days. Item to item correlation was computed for Urdu and English versions of the scale, which ranged from .80 to .91 ($p < .0001$) showing highly significant correlation between Urdu and English version items. Cronbach's alpha coefficient of Urdu version was computed which suggested it as a reliable measure to be used in the final study (α = .73).

5. Parenting Stress Index (PSI; Abidin, 1995)

The PSI is a 120 items questionnaire, which identifies and evaluates specific sources of stress in the parents' life, i.e., parent domain, child domain and other life events. High scores in parent domain scales (above 152) suggested a stress level that might adversely affect parenting. High scores in the child domain scales represent behavioral and temperamental qualities that can make parents feel that it is difficult for them to fulfill their parental nurturing role. The measure has acceptable psychometric properties, i.e., internal consistent reliability of .90 and greater (Abidin, 1995).

For the current research, PSI was translated into Urdu while using standardized back translation procedure, where item to item correlation for Urdu and English versions of the scale ranged from .52 - .90. Reliability of the Urdu version scale for the current sample of the study was determined by computing Cronbach's alpha coefficient (α = .87).

Procedure

At the first stage, children drawn from schools and mental health clinics were screened out for ADHD. For this purpose, formal permission was sought from school heads, and class teachers who had taught children at least for one year. Class teachers referred the problematic and hard to manage children in their classes, who often indulge in fighting, fidgeting and impulsivity. These children were then evaluated on DSM-IV ^{TR} criteria for ADHD. Prior to that informed consent was taken from the mothers of these children with the help of school administrations and teachers for participating in the study. They were approached either in the school or at their home places to complete Conners' Rating Scale-R afterwards.

For clinical units, permission was sought from the heads of the psychiatric units in government and private hospitals to collect data from child psychiatric units. The concerned psychiatrists or clinical psychologists referred children with ADHD, who were further evaluated on DSM-IV^{TR}

Table 1
Demographic Characteristics of Mothers and Children Samples

Mothers (n = 60)		Children (n = 60)	
Age in Years		Age in Years	
Mean (SD)	31 (7.74)	*M (SD)*	7.94 (1.81)
Range	24 – 40	Range	5 – 12
Education	*f* (%)	Gender	*f* (%)
Middle– Matric	37 (61.7)	Boys	55 (91)
Intermediate – Graduation	18 (30)	Girls	5 (8.3)
Post Graduation – Above	5 (8.3)		
SES (Family Income, Rs. per month)		Birth Order	
Lower (up to 8000)	21 (35)	Only	7 (11.7)
Lower Middle (9000-40000)	15 (25)	Eldest	22 (36.7)
Middle (15000 – 20000)	18 (30)	Middle	26 (43.3)
Upper (21000 & more)	6 (10)	Youngest	5 (8.3)
Family Size (No. of Children)		Grades / Classes	
Small (1-2)	21 (35)	1	19
Medium (3- 4)	27 (45)	2	17
Large (5-above)	12 (20)	3	14
		4	7
Family System		5	3
Nuclear	31 (51)		
Joint	29 (49)		
Marital Status			
Married	55 (92)		
Divorced	3 (5)		
Widow	2 (3)		

criteria. Informed consent was taken from their mothers and their ratings were taken on Conners' Parent Rating Scale-R for their children's behaviors.

It was ascertained that children selected for the study might not have other psychiatric disorders, i.e., ADHD, with or without a comorbid diagnosis of Oppositional Defiant Disorder (ODD) or Conduct Disorder (CD). Children with mild learning difficulties along with ADHD were not excluded from the study.

In the next phase of the study, mothers of the children identified with ADHD were requested to rate their children's behaviors on Child Behavior Checklist. In the second session, they were administered Parenting Stress Index followed by Parent Questionnaire and a demographic information form.

Results

Data were analyzed while using SPSS version 11. Table 1 indicates the demographic characteristics of the samples.

Table 2
Descriptive Statistics and Alpha Coefficient of Child Behavior Checklist (CBCL), Parenting Stress Index (PSI) and Parent Questionnaire (PQ) (N = 60)

Variables	No .of items	*M*	*SD*	Cut off Scores	α
PQ					
Appropriate/ Consistent	7	10.20	2.15	17	.68
Warmth/ Involvement	9	16.48	3.30	22	.89
Harsh/ Physical	4	10.25	2.19	10	.78
PSI					
Child Domain	47	141.90	8.43	117	.80
Parent Domain	54	153.18	13.15	152	.86
Total Stress	74	295.08	20.21	185	.87
CBCL					
Internalizing	33	15.00	3.20	30	.77
Externalizing	33	33.10	5.31	27	.78
Total Problems	113	175.11	12.24	152	.87

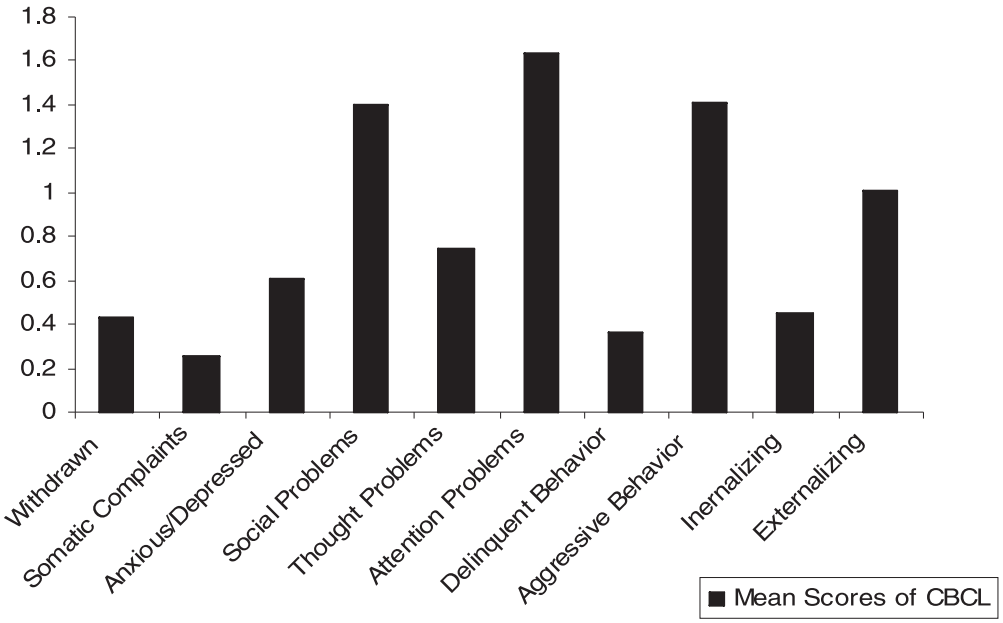
The results in Table 2 indicate the mean scores of harsh/physical discipline parenting style was above the cut off score for that scale (10), whereas, the other two dimensions of appropriate/consistent parenting and warmth/involvement are below the cut off scores suggesting that most of the mothers use harsh kind of child rearing practices with their children with ADHD. They are less capable of using appropriate/consistent discipline but still try to show warmth and involvement while disciplining their ADHD children.

Table 2 further shows that mothers have reported more externalizing behavioral problems in ADHD children ($M = 33.10$) than internalizing behaviors ($M = 15.0$).

Overall rated behavioral problems scores were also well high above the cut off points indicating mothers' perception of overall behavioral problems in their ADHD children. Mostly highly rated behavioral problems included attention, social, aggression and thought problems. These differences are clearly depicted in Figure 1.

Figure 1

Means Scores of Child Behavioral Problems on CBCL Reported by Mothers



The data in Table 2 further depicted high stress index score on parent domain scales (above cut off score 152) suggesting a high level of maternal stress. The scores in child domain were also high. According to Abidin (1995), high scores in mothers' domain may adversely impact parenting whereas high scores in the child domain scales constitute behavioral and temperamental qualities that can make parents feel it difficult to fulfill their parental nurturing role. The comparison of 3 dimensions of PQ, PSI and CBCL is depicted in Figure 2.

When inter-correlations were computed for these domains with each other, externalizing behavior problems showed strong positive relationship with maternal stress related to child (child domain stress) (r =.72), and at the same time showing strong positive association with Harsh/Physical parenting practices (r =.70). These correlations were significant at $p <$ .0001 (Table 3). Inverse relationship of Harsh/ Physical, with Warmth /Involvement (r = -.61) and with Appropriate/ Consistent (r = -.71) indicated that mothers were disciplining their ADHD children with punitive or harsh measures, they were not practicing appropriate and warm parenting practices.

A step-wise regression analysis was performed to determine the predictive power of different mother

Figure 2
Comparing 3 Domains of PQ, PSI and CBCL

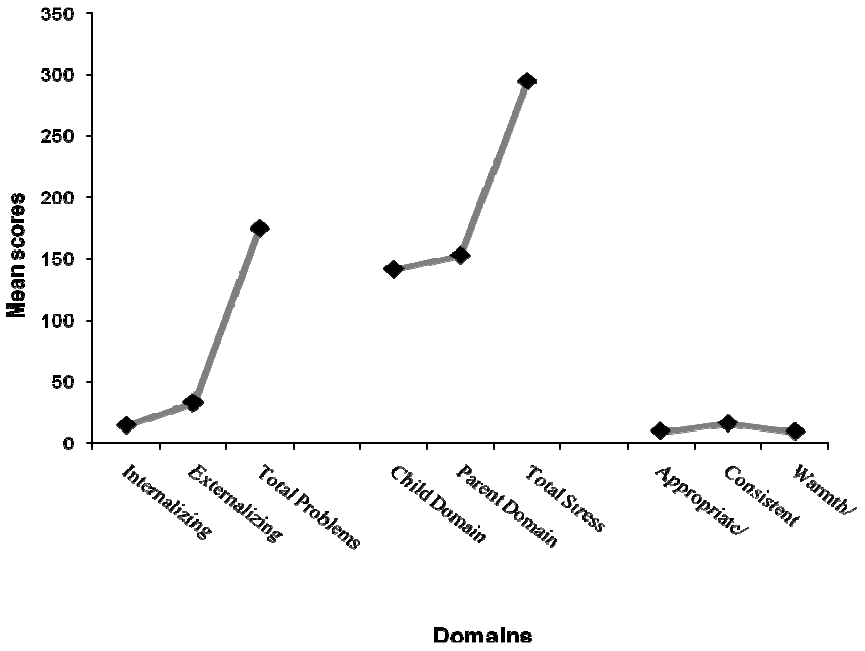


Table 3
Inter-correlations among 3 Dimensions of CBCL, PSI and PQ (N=60)

Scales	2	3	4	5	6	7	8	9
CBCL								
1. Internalizing	-.60**	-.01	-.41*	.56**	.54**	.53**	.51**	.46**
2.Externalizing	-	.74**	.72**	.62**	.70**	.76**	-.38*	.70**
3. Total Problems	-	-	.66**	.47**	.58**	.47**	-.01	.47**
PSI								
4. Child Domain	-	-	-	.74**	.90**	.52**	.16**	.46**
5. Parent Domain	-	-	-	-	.96**	.41**	-.12	.29
6.Total Stress	-	-	-	-	-	.49**	-.14	.39*
PQ								
7.Appropriater/Consistent	-	-	-	-	-	-	.40*	-.71**
8.Warmth/Involvement	-	-	-	-	-	-	-	-.61**
9.Harsh/Physical	-	-	-	-	-	-	-	-

*$p < .001$. **$p < .0001$.

and child related variables on parenting practices (Table 4). Results indicated that maternal stress was the strongest predictor for less appropriate and consistent parenting, as both children behavioral problems and maternal stress accounted for 57% of variance in Appropriate/Consistent parenting practice, scores, F (2, 57) = 11.52, $p < .0001$.

For mothers' harsh and physical parenting practices, child behavioral problem was the most significant variable (β = .47, t = 4.05, p= < .0001). The results further indicated negative relationship between socioeconomic level, child's age and harsh and physical discipline and positive relationship with mothers' age. Socioeconomic status of mothers was the only predictor for child's behavioral problems and the most significant predictor of harsh or warm parenting practice which accounted for 17% variance and scored, F (2, 57) = 9.23, p< .004. Children's age and number of children were excluded variables (Table 5).

Child's behavioral problems were the most significant predictor of Harsh and Physical discipline parenting style, followed by SES, child's age as well as mother's age. Interestingly only maternal stress and child's behavioral problems were accounted for appropriate /consistent discipline style of mothers, whereas for warmth/involvement SES was the only significant predictor. When data were analyzed for demographic variables related to mothers and ADHD children through One Way Analysis of Variance, significant in mean scores of 3 groups of mothers

Table 4
Stepwise Regression for Predictors of 3 Parenting Styles of Mothers (N=60)

Predictors	B	SE	ß	*t*	*p*
	Appropriate/Consistent				
Step 1 (R =.48, R² =.23)					
Maternal Stress	-5.15	.01	-.48	-4.21	.0001
Step 2 (R =.54, R²=.29)					
Maternal Stress	-3.39	.02	-.32	-2.32	.02
Child Beh. Problems	-5.02	.02	-.29	-2.18	.042
	Warmth/ Involvement				
Step 1 (R=.17, R²=.03)					
SES	1.94	.00	.37	3.04	.004
	Harsh/ Physical				
Step1 (R=.47, R²=.21)					
Child Behavior	8.40	.02	.47	4.05	.0001
Step 2 (R=.57, R²=.33)					
Child Beh. Problems	6.98	.02	.47	4.05	.0001
SES	-1.17	.00	-.34	-3.03	.004
Step 3 (R=.63, R²=.40)					
Child Beh. Problems	8.14	.02	.46	4.14	.0001
SES	-1.30	.00	-.38	-3.49	.001
Child Age	-.33	.13	-.27	-2.50	.01
Step 4 (R=.67, R²=.45)					
Child Beh. Problems	7.39	.02	.413	3.83	.0001
SES	-1.44	.00	-.42	-3.93	.0001
Child Age	-.39	.13	-.33	-3.01	.004
Mother Age	.11	.05	.24	2.24	.03

with different education levels related to child behavioral problems were found, F (2, 57) = 5.99, $p < .01$. Mothers with lower (Below-10th grade) and higher education (M.A.-Above) level reported relatively more problems in their children (M = 176.7 & M = 175.6) as compared to mothers having intermediate to graduation levels of education. At the same time, these two groups of mothers experienced high level of stress, F (2, 57) = 10.39, $p < .0001$, and consequently they were harsher towards their ADHD children.

Socio-economic status was another strong variable for stress in mothers in 3 SES levels of mothers, F (3, 56) = 8.99, $p < .0001$. Mothers belonging to lower SES had highest mean scores of stress (M = 310.1, SD = 13.73). Results in Table 5 also indi-

Table 5
One Way ANOVA Child Behavioral Problems, Parenting Stress and Parenting Practice Scores for Mothers' Education, SES and Family (N=60)

	Groups		
	Education	SES	Family Size
	F (2, 57)	*F* (3, 56)	*F* (2, 57)
CBCL	5.99*	3.52*	7.89**
PSI			
Maternal Stress	10.39***	8.99**	20.01***
PQ			
Appropriate/Consist.	2.85	6.64**	6.81*
Warmth/Involvement	1.07	2.02	2.10
Harsh/Physical	3.68*	4.08**	5.13*

*$p < .01$. **$p < .001$. ***$p < .0001$.

Table 6
Means, Standard Deviations and t-values for Family System on Child Behavior Checklist, Parenting Stress Index and 3 Dimensions of Parent Questionnaire

	Nuclear (n = 29)		Joint (n = 31)		
Scales	*M*	*SD*	*M*	*SD*	*t*
Child BP	172.03	10.15	178.41	13.53	2.07*
Maternal Stress	288.54	19.45	302.07	18.9	2.72**
Appropriate/ Consistent	10.77	2.09	9.59	2.08	2.20*
Warmth/ Involvement	17.10	3.53	15.83	2.99	1.49
Harsh/ Physical	9.35	2.12	10.52	2.13	2.12*

*$p < .05$. **$p < .01$.

cate significant difference in reported child behavioral problems by mothers belonging to different SES, F (3, 56) = 3.52, $p < .01$. Moreover, parenting practices were also significantly different in three SES groups, F (3, 56) = 8.99, $p < .0001$.

Results further indicated mothers having small, medium and large family sizes reported significantly different mean scores of their child's behavioral problems, F (2, 57) = 7.89,

$p < .001$ and maternal stress, F (2, 57) = 20.01, $p < .0001$. It means as the family size increased mothers' report behavior problems in their children and, consequently, practicing became more punitive and less consistent. The mean scores of mothers belonging to different family size indicated that larger the family size harsher the mothers' attitude towards their ADHD children (M = 10.59, SD = 1.78), F (2, 57) = 5.13, $p < .01$. However, results were non-significant for warmth parenting practices as far as the size of the family was concerned.

Family system, i.e., nuclear/joint also provided important information related to parental functioning.

The results of t-test in Table 6 show significant difference for maternal stress in both groups of mothers, t (58) = 2.72, p < .01. Stress was higher in mothers from joint (M = 302.07, SD = 18.9) than mothers of nuclear family system (M = 288.54, SD = 19.45). Child's reported behavior problems by these mothers were also significantly different, t (58) = 2.07, $p < .05$. Mothers belonging to joint family system reported more behavioral problems in their children (M = 178.41, SD = 13.53), t (58) = 2.07, $p < .05$ (Table 6). The mean scores of parenting practices showed that use of appropriate/consistent discipline was higher in nuclear families (M = 10.77, SD = 2.09), and harsh/physical discipline was frequently practiced in joint family system (M = 10.52, SD = 2.13). No significant difference was found in mean scores of two groups for warmth/involvement parenting practice.

Discussion

The present study examined the parenting practices of mothers of children with ADHD in relation to children's severity of behavioral problems and maternal stress with the assumption that behavioral problems like hyperactivity, impulsivity, and inattention, etc. would contribute to stress and particularly challenging parenting experiences for their mothers. The overall family environment may also be negatively influenced by the child's ADHD because child's defiant behaviors create an increased number of negative interactions between the parent and child. These interactions contribute to higher parent stress levels (Anastopoulos et al., 1992). Results of the current study indicated a positive and strong association between parental practices and stress level in mothers, findings consistent to several reports indicating that mothers of children with ADHD often experience high level of stress in their parenting role (Johnston & Mash 2001; Kazdin & Whitley, 2003). In our study, most of the mothers reported behavioral problems like aggression, thought problems, inattention, and social problems in their children, depicting overall more externalizing than internalizing behavioral problems in their children with ADHD. The results further showed maternal stress was more related to child's externalizing behavior; this is again in line with the findings of Baker and McCal (1995) who compared parenting stress among mothers of children with ADHD, mothers of children with learning disabilities and mothers of non-referred children and found that parenting stress was highest for mothers of children with ADHD, which was associated in particular with externalizing behavior problems. Similarly, Barkley et al. (1991) showed that for families of children

with ADHD, coercive parent-child interactions were better accounted for the presence of comorbid ODD symptoms than by ADHD alone. Since research has reported that externalizing behaviors of children are potential explanatory mechanisms of negative parent-child interactions, investigations of factors related to negative parent-child interactions must take externalizing behaviors and comorbidity into consideration.

Our second hypothesis was that parenting practices of the mothers of children with ADHD will be determined by their stress level. Correlation analysis indicated the trend in expected direction; elevated maternal stress adversely affected their ability to use appropriate and consistent discipline while rearing their children. Rather they were more inclined towards harsh parenting practices, exhibiting relatively less warmth and involvement. These results are complementing many studies examining parenting practices among families with children having ADHD, in that mothers of children with ADHD often experience heightened levels of stress in their parenting role and, consequently, it affects their ability to utilize positive parenting practices to elicit co-operative behavior from their child (Anastopoulos et al., 1992; Dix, 1991; Johnston & Mash, 2001; Kazdin & Whitley, 2003). Many researchers have indicated that elevated stress level increases the likelihood of actual deficits in certain parenting variables such as involvement, warmth, and secure attachment (Olson et al., 2000; Stormshak, et al., 2000; Whalen & Henker, 1999). High scores in the child domain of maternal stress showed that child characteristics, particularly hyperactivity and demandingness were major factors in contributing to the maternal stress. Several reports in the literature indicate that stress in mothers of extremely restless and impulsive children begins early and appears chronic in nature (Barkley et al., 1991).

High scores of mothers on the subscales of Stress Index related to health and depression indicated the deterioration in the state of mothers' physical and psychological health while raising children with ADHD, which might adversely affect their parenting behaviors also. Most of the items on depression subscale of stress index were related to guilt and unhappy feelings, which although often associated with depression, may be responding to primarily out of dissatisfaction with self and life circumstances. According to Abidin (1995), mothers find it difficult to mobilize the psychic and physical energy needed to fulfill parenting responsibilities. In Pakistani society, mothers are forced to feel guilty and blame themselves, when they cannot control the behaviors of their children because mothers are usually considered solely responsible for the disciplining, training and behavior management of their children than fathers in Pakistani socio-cultural context. Moreover, being mother of an abnormal or problematic child is another stigma that such women have to face in our society; they sometimes restrict themselves from all kinds of day-to-day social situations because of the poor behavior frequently displayed by their children and the attributions placed on those behaviors. So increased child control over parent's lives and decreased parental control over child's behavior, in turn, increases parenting stress especially for mothers.

Another assumption of the study

was regarding the severity of child behavioral problems in association with parenting practices in mothers of children with ADHD. The results showed that child's externalizing behaviors (aggression, delinquent behavior) were positively associated with mothers' harsh/physical discipline and negatively associated with appropriate/consistent discipline and maternal warmth/involvement, implying that mostly mothers are under stress so their tolerance level is low. Moreover, it is very common practice in our culture that child in the family who is temperamentally difficult is more likely to receive coercive discipline as compared to siblings who have cooperative and obedient dispositions. These results are consistent with other investigators who reported that mothers of children with ADHD have been found to use more negative and controlling parenting practices that appear to be directly attributable to difficult child behavior (Anderson, Lytton, & Romney, 1986; Mash & Johnston, 1990).

Data were further explored through stepwise regression analysis to determine the predictive power of child behavior and maternal stress variables on parenting practices. Results indicated that the combination of these two variables accounted for 29% of variance in Appropriate/ Consistent parenting practice; of the two predictors' maternal stress was more important variable. Moreover for Harsh/Physical discipline, child behavior was stronger predictor than maternal stress and accounted for 24% of variance. So it may be concluded that mothers' punitive and coercive discipline was only related to child's problematic behavior rather than her own stress. Overall, results indicated that child's behavior problems and maternal stress were potential predictors and have great association with mother's appropriate and harsh parenting, but her warmth / involvement with the child cannot be predicted through stress or disruptive child behavior.

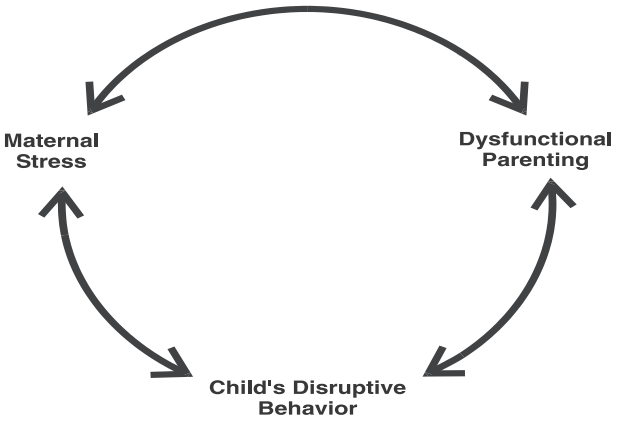
Holden (1997) posed that parenting is a series of reciprocal interaction between parents and their children, the behavior of each participant affecting the behavior of the other, therefore the reciprocal relationship among parenting practices, child behavioral problems and maternal stress was another important assumption for the present research. Stepwise regression analysis confirmed the hypothesis that child behavior problems could be predicted through mothers' stress and parenting practices. Strong predictors were mother's stress, harsh parenting behavior and her involvement/warmth (which may be called over-involvement or over-protection). Effects of parenting practices on child's outcome behaviors were already examined by Stormshak, Bierman, McMahon, and Lengua (2000), and revealed that parent's use of punitive disciplinary practices was associated with hyperactivity, aggression and oppositional behavior in children with ADHD; low levels of warmth and involvement served as a predictor of oppositional behavior. They also reported an association between warmth and involvement with child internalizing behavior problems. Although the findings of this study produced significant correlation between harsh parenting and child behavior problems, it is difficult to ascertain the direction of the affects, i.e., does coercive parenting lead to problem behaviors in children or do coercive children drive their parents to resort to coercive parenting tactics. However, the result

emphasized that parenting plays an important role in the development and maintenance of child disruptive behaviors. Podolski and Nigg (2001) suggested that emotionally stable relationships within the family system provide a substantial degree of inoculation against more severe psychological and social impairments associated with ADHD, and severely impaired child behaviors and performance creates conflict in the family relationships resulting in the strains in the family functioning.

As the results of this study so far suggested that increased stress may lead to ineffective parenting in mothers of children with ADHD, which was related to the child's problems, but the results regarding the demographic variables further showed that this was dependent upon the other family characteristics like maternal education, SES, family system, and family size and child's characteristics like age and birth order etc. The results suggested that less educated mothers reported more behavioral problems in their children, the stress level was also elevated in this group, and at the same time they were more often using harsh and physical discipline to control the excessively hyperactive children. In the light of these findings, it is therefore strongly recommended to educate such mothers about the disorder their children were having and its implications.

The findings of this study further indicated the importance of socioeconomic status in the family functioning. Mothers who belonged to lower SES reported more child behavioral problems, high stress, and less appropriate and harsh parenting practices than mothers belonging to upper class. It explains that economic problems are also major stressor in the lives of these mothers, which affects all aspects related to child raising. Another important factor was size of the family or number of children being raised by the mothers. Results indicated that lager the family, higher the maternal stress level; more reported child behavioral problems, consequently, more use of harsh parenting practice. If mother is already burdened with responsibilities of a large family in lower SES, it might fortify her stress level. Moreover, mothers living in the joint family system were burdened with negative social support, which contributed to high stress; their children were showing more behavior problems and mothers were responding more inconsistently and punitively towards their children. These results are consistent with the findings of Johnston and Mash (2001) who reported that mothers of ADHD children might be exposed to considerable negative social support because of the poor behaviors frequently displayed by their children and attributions placed on those behaviors by others.

Concluding the discussion, it may be suggested that mothers raising a child with ADHD often experience heightened level of stress which affects their parenting role; this stress affects not only the ability of the mother to utilize positive parenting practices but also makes her unable to elicit cooperative behavior from her child, hence suggesting a reciprocal relationship among these variables. The underpinning factor of ineffective parenting among these mothers is stress; which she experiences either directly from the child's disruptive behaviors or due to her feelings of inability to control the behaviors of her ADHD child, and their parenting then consequently may affect



behavioral problems in ADHD children.

Limitations and Suggestions

1. Limited sample size and cross-sectional nature of this study limits the generalizibility of the findings.
2. Observational method to study the mother-child interaction could have been more appropriate to collect the data for parenting practices to strengthen the self reports.
3. Future studies may consider the use of multiple measures of parenting practices, rather than being restricted to questionnaire responses.
4. Inclusion of fathers' sample could have given more elaborated picture of parenting of children with ADHD.
5. It is recommended that qualitative research like focus group discussions would be useful to understand the common parenting practices being used in our culture.
6. Due to the strong genetic underpinnings of ADHD, our study poses another limitation of inability to factor out potential genetic mediators of conflictual parent-child relationships. In future, genetically informed research that includes different degrees of genetic relatedness may be crucial to elucidate genetic/environmental mechanisms of parent-child conflicts.

Implications of the study

The results of this study have implications for the clinical interventions in the ADHD population. Very often, the focus of intervention program is on effective management of child's behaviors by the parent and the application of medication and behavioral programs aimed at the child, but completely neglecting parents psychological functioning. Present research proposes the importance of parent training programs to enhance their knowledge about the nature of ADHD and managability of their own stress which may not only optimize their parenting quality but will increase the effectiveness of the clinical interventions for their ADHD children.

References

Abidin, R. R. (1995). *Parenting stress index* (3rd ed.). USA: Psychological Assessment Resources.

Achenbach, T. M., & Edelbrock, F. C. (1991). *Manual for the child behavior checklist and revised child behavior profile.* Burlington,VT: University of Vermont, Department of Psychiatry.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders*: DSM-IV- TR (4th ed.). Washington D.C: Author.

Anastopoulos, A. D., Guevremont, D. C., Shelton, T. L., & DuPaul, G. J. (1992). Parenting stress among families of children with attention deficit hyperactivity Disorder. *Journal of Abnormal Child Psychology, 20,* 503–520.

Anderson, K. E., Lytton, H., & Romney, D. M. (1986). Mothers' interactions with normal and conduct disordered boys: Who affects whom? *Developmental Psychology, 22*, 604-609.

Baker, B. D., & McCal , K. (1995) Parenting stress in parents of children with attention deficit hyperactivity disorder and parents of children with learning disabilities. *Journal of Child and Family Studies, 4*, 57-68.

Barkley, R. A. (1998). *Attention deficit hyperactivity disorder. A handbook for diagnosis and treatment* (2nd ed.). NY: Guilford.

Barkley, R. A., Anastopoulos, A. D Guevremont, D. C., & Fletcher, K. E. (1992). Adolescent with attention deficit hyperactivity disorder: Mother adolescent interactions, family beliefs and conflicts, and maternal psychopathology. *Journal of Abnormal Child Psychology, 20*, 263-288.

Barkley, R. A., Fischer, M., Edelbrock, C. S., & Smallish, L. (1991). The adolescent outcome of hyperactive children diagnosed by research criteria, III: Mother-child interactions. *Journal of Child Psychology and Psychiatry, 32*, 233–255.

Belsky, J. (1984). The determinants of parenting: A process model. *Child Development, 55*, 83-96.

Biederman, J., & Faraone, S. V. (2002). Current concepts on the neurobiology of attention-deficit/hyperactive disorder. *Journal of Attention Disorders, 6,* 7-16.

Biederman, J., & Milberger, S., Faraone, S. V., Kiely, K., Guite, J., Mick, E., et al. (1995). Family-environment risk factor for attention deficit hyperactive disorder. A test of Rutter's indicators of adversity. *Archives of General Psychiatry, 52*, 464-470.

Biederman, J., Newcorn, J., & Sprich, S. (1991). Comorbidity of attention deficit hyperactivity disorder with conduct, depressive, anxiety, and other disorders *American Journal of Psychiatry 148*, 564-577.

Carr. A. (1999). *Handbook of Child and Adolescent Clinical Psychology.* London: Routledge.

Conners, C. K. (1997). Conners' rating scale - revised. Technical manual. NY: Multi-Health Systems.

Dix, T. (1991). The affective organization of parenting: Adaptive and maladaptive processes. *Psychological Bulletin*, *110*, 3–25.

Doyle, S.R., & McCarthy, C. A. (2002). *Parent questionnaire:* Grade 4 + Retrieved on August 23, 2005, from http://www.fast-trackproject.org

Fletcher,K. E., Fischer, M., Barkley, R. A., & Smallish, L. (1996). A sequential analysis of the mother-adolescent interactions of ADHD, ADHD/ODD, and normal teenagers during neutral and conflict discussions. *Journal of Abnormal Child Psychology, 24*, 271-297.

Hinshaw, S. P. (2000). Attention-deficit/hyperactivity disorder: The search for viable treatments. In P. C. Kendall (Ed.), *Child and adolescent therapy: Cognitive-Behavioral procedures* (2nd ed., pp. 88-128). NY: Guilford.

Holden, G. (1997). *Parents and the dynamics of child rearing*. Boulder, CO: Westview Press.

Holden, G., & Miller, P. (1999). Enduring and different: A meta-analysis of the similarity in parents' child rearing, *Psychological Bulletin,2,* 223-254.

Johnston, C., & Mash, E. J. (2001). Families of children with attention- deficit/hyperactivity disorder: Review and recommendations for future research. *Clinical Child and Family Psychology Review*, *4*, 183-207.

Kazdin, A. E., & Whitley, M. K. (2003). Treatment of parental stress to enhance therapeutic change among children referred for aggressive and antisocial behavior. *Journal of Consulting and Clinical Psychology*, *71*, 504-515.

Loona, M. I., & Kamal, A. (2004). Academic performance and school social behavior of ADHD and non-ADHD children. *Pakistan Journal of Social and Clinical Psychology, 2*, 17-37.

Malhi, P., & Singhi, P. (2000). Spectrum of attention deficit hyperactivity disorder in children among referrals to psychology services. *Indian Pediatrics*, *37,* 1258-1260.

Mash, E. J., & Johnston, C. (1990). Determinants of parenting stress, illustrations from families of hyperactive children and families of physically abused children. *Journal of Clinical Child Psychology*, *19*, 313-328.

McLaughlin, D. P., & Harrison, C. A. (2005). Parenting practices of mothers of children with ADHD: The role of maternal and child factors. *Child and Adolescent Mental Health 11,* 72-82.

McLaughlin, D. P., & McCarthy, C. A. (2005). Parenting practices of mothers of children with ADHD: The role of maternal and child factors. *Child and Adolescent Mental Health, 11*, 72-82.

Nigg, J. T., & Hinshaw, S. P. (1998). Parent personality traits and psychopathology associated with antisocial behaviors in childhood attention-deficit hyperactivity disorder. *Journal of Child Psychology, Psychiatry and Allied Disciplines*, *39*, 145-159.

Olson, S. L., Bates, J. E., Sandy, J. M., & Lanthier, R. (2000). Early developmental precursors of externalizing behavior in middle childhood and adolescence. *Journal of Abnormal Child Psychology*, *28*, 119-133.

Pliszka, S., Carlson, C., & Swanson, J.(1999). *ADHD with comorbid disorder: Clinical assessment and management.* NY: Guilford Press.

Podolski, C., & Nigg, J. T. (2001). Parent stress and coping in relation to child ADHD severity and associated child disruptive

behaviour problems. *Journal of Clinical Psychology. 4*, 503-513.

Qureshi, A., & Thaver, D. (2003) Cross sectional review of children with ADHD presenting to an outpatient psychiatric institute in Pakistan. *Journal of Pakistan Medical Association*, *53*, 112-120.

Stormshak, E. A., Bierman, K. L., McMahon, R. J., & Lengua, L. J. (2000). Parenting practices and child disruptive behavior problems in early elementary school. *Journal of Clinical Child Psychology*, *29,* 17-29.

Strayhorn, J. M., & Weidman, C. S. (1988). A parent practices scale and its relation to parent and child mental health. *Journal of the American Academy of Child and Adolescent Psychiatry, 27*, 613 - 618.

Tannock, R. (1998). Attention deficit hyperactivity disorder: Advances in cognitive, neurobiological, and genetic research. *Journal of Child Psychology, Psychiatry, and Allied Disciplines*, *39*, 65-99.

Tripp, G. (2003). ADHD: *Beyond the child*. Retrieved September 20, 2006 from http://www.cas.uni.no/Publications/Seminar/Convergence_Tripp.pdf.

Wahler, R. G., & Dumas, J. E. (1989). Attentional problems in dysfunctional mother-child interactions: An inter-behavioral model. *Psychological Bulletin*, *105*, 116-130.

Weiss. G., & Hechtman, L. (1993). *Hyperactive children grown up* (2nd ed.). NY: Guilford Press.

Whalen, C. K., & Henker, B. (1999). The child with attention deficit/hyperactivity disorder in family contexts. In H. C. Quay & A. E. Hogan (Eds.), *Handbook of disruptive behavior disorders.* NY: Plenum.

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