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## The Relationship Between Severity of Attention Deficit Hyperactivity Disorder (ADHD) with Maternal Anxiety

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Yunias Setiawati<sup>1(CA)</sup>, H J Mukono<sup>2</sup>, Joni Wahyuhadi<sup>3</sup>, Endang Warsiki<sup>4</sup>

<sup>1(CA)</sup>Doctoral Program of Health Science, Faculty of Public Health, Airlangga University, Indonesia; yunias.setiawati@gmail.com (Corresponding Author)

<sup>2</sup>Department of Environmental Health, Faculty of Public Health, Airlangga University; Indonesia

<sup>3</sup>Neurosurgery Department, Faculty of Medicine, Airlangga University; Indonesia

<sup>4</sup>Psychiatric Department, Faculty of Medicine, Airlangga University; Indonesia

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### ABSTRACT

Attention deficit hyperactivity disorder (ADHD) is the most common childhood neurobiological disorder with main symptom of inattention, hyperactivity, impulsivity and minimal occurrence in two different place settings, for example at home and at school. ADHD disorders will last sustainably from adolescence to adulthood. Mothers of ADHD children tend to be anxious, tired and desperate because they are often blamed by the environment for failing to educate children due to opposing children's behavior, disobeying orders that result in ADHD children being rejected and experiencing low learning achievement. Mothers are also often must lose his job due to having to take care of his own ADHD child. Methods: Observational analytic study with cross sectional design of 30 mothers of ADHD children aged 6 to 12 years of Bina Karya primary school Surabaya by random sampling method. Assessment of ADHD by mothers using SPAHI (Skala Penilaian Anak Hiperaktif Indonesia) and maternal anxiety assessment using Hamilton Anxiety Rating Scale questionnaire Results: there was significant correlation between maternal anxiety level and severity of ADHD with score  $p = 0.003$  and  $r = 0.530$  Conclusion: The degree of maternal anxiety is related to the severity of ADHD.

Keywords: ADHD, Maternal anxiety

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### INTRODUCTION

ADHD is the most common chronic and pervasive neurobiological disorder encountered in clinical practice<sup>(1),(2)</sup>. Due to the behavior of children with ADHD who are less disciplined, often disobedient, disrespectful, disobeying orders, often ignoring tasks, forgetful, poor academic achievement, will lead to poor communication and tension in the family, especially in mothers<sup>(3)</sup>.

ADHD prevalence ranges from 6% - 9% of the schoolchild population by female to male 1: 4 ratio<sup>(4)</sup>. ADHD is often a comorbidity with anxiety and depression that can aggravate the symptoms of ADHD<sup>(5)</sup>. The underlying cause of ADHD is unclear. Etiology of ADHD is multifactorial. The interactions between genetic, environmental and behavioral factors of prenatal, natal and postnatal mothers play an important role in the occurrence of this disorder<sup>(6),(7)</sup>. ADHD often develops with other mental disorders and learning disorders<sup>(8)</sup>. ADHD can last throughout life from childhood, adolescence and adulthood and may increase the risk of failure in school completion, peer rejection, family conflicts, substance abuse, opposition behavior, poor performance, depression, risk of death, suicide and problems physical health<sup>(9)</sup>. The rejection of friends and the environment will adversely affect children with poor communication and low self-esteem<sup>(10)</sup>. ADHD children may impact tension in the family, mothers, fathers and siblings to frequently engage in prolonged conflicts due to incomprehensible parenting children of ADHD so as to increase stressors in family members<sup>(11),(12)</sup>. Mothers of ADHD children often feel guilty, disappointed, angry and desperate, feel guilty for not being able to educate children well, losing his job owing to overseeing his ADHD child at home Mothers of ADHD children tend to have negative parenting patterns, more control, and tend to punish more due to externalizing behaviour<sup>(13)</sup>. Maternal anxiety will result in less optimal child care, because the mother is easily offended, irritable, difficulty sleeping, ignore the child's ADHD so the symptoms will get worse because mothers can not care for children properly and result in less optimal management of ADHD<sup>(14),(15)</sup>. The role of mothers during early childhood

development will play a significant role, father support has a positive impact on child development, family instability and maternal anxiety, poor family attention and lack of stimulation in children can worsen the prognosis of child ADHD<sup>(14),(15)</sup>.

Social function and family support play a major role in the management of ADHD<sup>(16)</sup>. Child behaviour in the form of inattention can cause low cognitive stimulation of children while the symptoms of hyperactivity and impulsivity can lead to environmental rejection and increase maternal anxiety and depression..ADHD child mothers tend to have negative parenting, multiple penalties, frequent child control and less stimulation so that it can exacerbate symptoms of ADHD<sup>(5),(14),(17)</sup>.

This study aimed to analyze the relationship between severity of ADHD symptoms in primary school maternal degree of anxiety. The general objective of the study was to determine the severity of ADHD and maternal degree of anxiety and then to analyze the relationship between the two factors. Benefits of research by doing early detection of ADHD maternal degree of anxiety would be able to do intervention to mother if needed

## METHODS

This study was a cross sectional observational analytic study of 30 mothers of ADHD children. Mothers of ADHD children who fulfilled the following inclusion criteria: productive age mothers aged 20-50 years who had only one ADHD biological children, lived in a house and caring for his or her own ADHD child, able to speak Indonesian well and correctly, willing to be interviewed and fill out questionnaires and willing to follow the research program are asked to sign information for consent and informed consent. Psychosocial stressor assessment using Social Readjustment Rating Scale (Holmes and Rahe) scale and. The degree of maternal anxiety is measured by using the Hamilton Rating Scale for Anxiety (HRSA) To assess the severity of ADHD, the mother is asked to fill out the SPAHI (Skala Penilaian Anak Hiperaktif Indonesia) / Indonesia Hyperactive Child Assessment Scale. The criteria for mother's exclusion are: being physically ill and in hospital care, suffering severe mental illness, having other children who are severely disabled, conflicts with husbands and families, have severe economic problems (BJPS participants / poor families) and with extended families (there are families other than fathers, mothers, children, maids).

The collected data was processed and analyzed statistically descriptively and inferentially by using Pearson Correlation Test and presented in tabular form.

## RESULTS

Table 1. Characteristics of age, education and job of mother

Characteristic Mother	HRSA severity			T o t a l (n=30)
	Mild (n=6)	Moderate (n=11)	Severe (n=13)	
Age (year)				
< 30	1 (33.3%)	0 (0,0)	2 (66.7%)	3 (100.0%)
30 – 34	1 (14.3%)	3 (42.9%)	3 (42.9%)	7 (100.0%)
35 – 39	2 (16.7%)	5 (41.7%)	5 (41.7%)	12 (100.0%)
40 – 44	2 (40.0%)	2 (40.0%)	1 (20.0%)	5 (100.0%)
45 – 49	0 (0.0)	1 (33.3%)	2 (66.7%)	3 (100.0%)
Education				
Primary school	0 (0.0)	1 (50.0 %)	1 (50.0 %)	2 (100.0 %)
Intermediate School	0 (0.0)	3 (42.9 %)	4 (57.1 %)	7 (100.0 %)
High School	4 (28.6%)	4 (28.6 %)	6 (42.9 %)	14 (100.0 %)
Diploma/University	2 (28.6%)	3 (42.9 %)	2 (28.6 %)	7 (100.0 %)
Job				
Outside the home	3 (30 %)	5 (50 %)	2 (20 %)	10 (100 %)
Inside the home	1 (20 %)	2 (40 %)	2 (40 %)	5 (100 %)
Housewife	2 (13.3 %)	4 (26.7 %)	9 (60 %)	15 (100 %)

Characteristic mother obtained by age most mother is in age range 35 years until 39 years old who have moderate anxiety and equal to 41.7% From result of education of mother who experience anxiety is mother with high school education with moderate anxiety value equal to 28.6% and severity anxiety mother point 42.9%. Mothers who work outside the home are mothers who work in the office and at school so that the mother can not take care of her ADHD child while working while the mother who works at home is the mother who works at home so that can take care of ADHD while working. Housewives are less anxious than mothers working outside the home with lower anxiety scores compared to mothers working outside the home

Table 2. Relationship between the sequence of children with maternal anxiety level

Sequence of children	HRSA severity			Total
	Mild	Moderate	Severe	
First child	1 (16.7 %)	0 (0.0 %)	5 (83.3 %)	6 (100.0 %)
Middle child	1 (33.3 %)	1 (33.3 %)	1 (33.3 %)	3 (100.0 %)
Youngest child	2 (13.3 %)	7 (46.7 %)	6 (40.0 %)	15 (100.0 %)
Only	2 (33.3 %)	3 (50.0 %)	1 (16.7 %)	6 (100.0 %)
Total	6 (20 %)	11 (36.7%)	13 (43.3%)	30 (100.0%)

From the results of the study showed that the sequence of the firstborn relates to the degree of severe anxiety in the mother of 83.3% and the youngest children associated with the degree of moderate anxiety of 46.7% and the degree of severe anxiety by 40.0%

Table 3. Relationship between severity of ADHD symptoms and maternal anxiety level

	I O W A
HRSA Ibu	r = 0.530 p = 0.003

The results showed a significant relationship with the p-value = 0.003 and the degree of strength of the relationship with a strong degree of 0.503

Table 4. Relationship between severity of ADHD symptoms and maternal anxiety level with external factors

External Factors	Maternal anxiety	Severity ADHD
Education Mother	r = -0.365 p = 0.047	-
Teacher calls the mother to come to school because of the child's negative behavior	r = 0.020 p = 0.917	r = 0.193 p = 0.307
Worrying mother	r = 0.375 p = 0.041	r = 0.553 p = 0.002
Disturbing the harmony of mom and dad	r = 0.439 p = 0.15	r = 0.343 p = 0.063
Disturbing the peace at home	r = 0.349 p = 0.059	r = 0.571 p = 0.002
Negative neighbor's response	r = 0.366 p = 0.046	r = 0.542 p = 0.002

Negative correlation was significant between -0.365 between maternal education with maternal degree of anxiety with lower mean of mother's education hence mother's degree of anxiety will be higher also. There was a significant positive correlation of 0.375 between ADHD children who worry about mothers with the degree of mother's anxiety which means the more severe the symptoms of ADHD then the degree of maternal anxiety will increase. Negative responses from neighbors will increase the degree of maternal anxiety, this result was characterized by a positive relationship of 0.366. The more severe the symptoms of ADHD then the mother's anxiety will increase also, this result was characterized by a score of 0.553. It was found a significant positive relationship between the severity of ADHD symptoms of 0.571 with disturbing the peace at home with the meaning of the more severe symptoms of ADHD will further disrupt the peace at home. There was a significant positive association between the severity of ADHD symptoms and the neighboring negative response of 0.542, which means that the more severe the symptoms of ADHD will cause a negative response of the neighbor.

### DISCUSSION

From the results of the research we conducted at SD Bina Karya 1 in August 2017 up to September 2017 we obtained results in Table 1 that mothers with age ranges from 35 years to 39 years old who experienced moderate and severe anxiety respectively 41.7%. This result is in accordance with the literature which states that in that age range a woman mostly has done the task of child labor and is a golden period in developing career and sociality with family, friends, and the environment. Parenting in ADHD children will have a negative impact of increasing anxiety, depression, despair, guilt and blame others for not being able to properly educate children.

Families and environments that lack understanding of the condition of the child will increase the stressor in the mother so that it can aggravate anxiety disorders in the mother<sup>(18),(19),(20)</sup>.

ADHD often has problems because it often violates the rules at home and can result in negative impact in negative parenting and negative communication also distressed in family. The early phase of development of the mother's role in the care of children with ADHD is so great that an understanding of ADHD children and the uniformity of family care is necessary to minimize punishment and provide positive rewards for positive child behavior<sup>(21)</sup>.

The results of the study in table 1 concluded that mothers with high school education with a moderate anxiety score of 28.6% and severity anxiety of 42.9% while on mothers with primary school education also exposed to moderate anxiety and severe of 50% each. This result is consistent with the theory that ADHD care will cause stressors in the household, especially the mother. ADHD children with opposing, careless, rule-breaking, unmanageable, less responsible behaviors will increase stressors in the family<sup>(12)</sup>.

From the work of both working mothers and unemployed both show the same result that both cause anxiety. Working mothers can not focus on the job well, because they are often called teachers and blamed for being unable to properly educate their children, working mothers are also unable to achieve good performance because they are concerned with the behavior of their ADHD children<sup>(8)</sup>. From the results of research about relationship between the sequence of children with maternal degree of anxiety then both show the same results where the eldest son and the youngest both cause anxiety in the parents. This result can be explained because mothers feel anxious when the eldest child with negative behavior will be imitated by his brother so that the mother educates the eldest son harder when compared with his other brother, in the hope that the eldest child can teach good behavior towards his brother. But the negative behavior of the child will increase maternal anxiety. While in the youngest child can be caused by more permissive parenting so as to aggravate the symptoms of ADHD. Children never learn to be disappointed because they always obeyed their will. Children tend to be egocentric, always want to be obeyed willingly, less attention to the interests of others. Children will be rejected environment, and exacerbate mother's anxiety<sup>(22),(23)</sup>.

From the result of relation of severity of ADHD with maternal degree of anxiety, there was a significant result which showed a positive correlation on ADHD severity degree with maternal degree of anxiety<sup>(24),(25)</sup>. These results are consistent with the condition that parenting ADHD increase anxiety in the mother because the mother feels confused, discouraged by the incomprehension of the child's condition and will cause maternal anxiety<sup>(21)</sup>.

Authoritarian parenting with high discipline, inappropriate for ADHD children, because parenting with lots of demands, rules, high discipline and low warmth will aggravate the symptoms of ADHD due to negative communication that exacerbates the anxiety of mothers because they feel that they have failed to educate their children. This condition is exacerbated because the mother does not understand the condition of his child and environmental rejection of the child. We recommended that parents should be able to collaborate with teachers, psychologists and child psychiatrists in dealing with their child. Early ADHD detection training is needed for parents and teachers to help parents and teachers recognize the child's behavior and overcome the problems faced by the child so that good outcomes are achieved and improve family awareness and create a conducive learning environment for children. Parents and teacher are trained to give praise to the child with the aim of enhancing physical attachment and enhancing the child's self esteem. Parents can help overcome the difficulties of ADHD children in self-regulation, by determining priority scales, creating daily schedules, installing large hours in which children learn and giving clear, brief and clear orders, because children will become confused when the sentence is too long so resulting in the child can not complete the task well. For complex tasks moms can divide tasks in sections. With good communication between mother and child it will be able to help address the problems of ADHD children and decrease the anxiety of mother<sup>(5),(26),(27),(28)</sup>.

Children's approach is individualistic in accordance with the needs and conditions of children with the hope of developing children's skills and independence of children so as to improve self esteem, self confidence and resilience of children. The results show that ADHD children do not interfere with family harmony, these results do not match the results of previous studies suggesting that care for ADHD children leads to distress and tension in the family, where each family member blames each other for the inadequate parenting of ADHD children<sup>(14),(29),(30)</sup>. This result can be caused by both parents already understand the condition of the child because they often consult with teachers in the classroom and with psychiatric assistance who had been working with the school to provide counseling for parents who have children with permasalahan in managing emotions and behavior in school.

## CONCLUSIONS

The severity of ADHD symptoms is related to the degree of maternal anxiety. With early detection of the severity of ADHD it is useful to administer ADHD as early as possible and to reduce maternal degree of anxiety. By understanding the condition of ADHD in children it will be able to improve maternal skills in parenting ADHD children so as to help ADHD overcome problems and improve self esteem of children and well being family. Positive parenting with warmth will have a positive impact on the development of ADHD children.

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