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RESEARCH ARTICLE

The Risk of Attention Deficit Hyperactivity Disorder (ADHD) in Preschool Children

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ABSTRACT

ADHD symptoms in preschool children have an impact on social development, especially social competence. ADHD symptoms in preschool children will increase oppositional behavior and behavioral problems with peers, making it difficult for children to make friends and establish healthy relationships. Early detection of ADHD risk is important, but the picture of ADHD risk in preschool children is still not widely known. This study aims to obtain a description of ADHD symptoms in preschool children in East Java. This study used descriptive quantitative research with a sample size of 202 preschool children. The instrument to detect ADHD risk is the Abbreviated Conners Rating Scale (ACRS). Data findings were analyzed using univariate analysis. The results of data analysis showed that 30% (60 out of 202) preschool children had ADHD risk. The most common ADHD symptom is Tirelessness, or excessive activity. These findings suggest that ADHD risk detection needs attention at the preschool level.

Keywords: *ADHD, Early Detection, Preschoolers*

INTRODUCTION

Socio-emotional development plays an important role in pre-school children. Socio-emotional development includes a child's ability to interact with others, manage emotions, and build healthy relationships. Preschoolers who are able to recognize and manage emotions well tend to show acceptable behavior in social interaction (Denham, 2006). Preschoolers with a good ability to recognize and manage emotions will more easily initiate social interactions (Nurmalitasari, 2015). Preschoolers with good emotion regulation more easily show adaptive behavior or behavior that can be accepted by the social environment (Putri & Primana, 2017). This means that emotional development will support social development in preschool children.

One form of ability in socio-emotional development is social competence. The development of social competence is influenced by several factors. The SOCIAL model (Beauchamp & Anderson, 2010) describes socio-emotional development as influenced by internal factors, external factors, and brain development factors. One condition that affects socio-emotional development as part of brain development factors is Attention Deficit Hyperactivity Disorder (ADHD). In Indonesia, ADHD is known as *Gangguan Pemusatan Perhatian Hiperaktivitas* (GPPH) (Juniar & Setiawati, 2014).

ADHD symptoms in preschool children can increase oppositional behavior and behavioral problems with peers (Krasner et al., 2022). Children with ADHD symptoms will have difficulty making friends because they tend to show oppositional behavior and problematic behavior with peers (Gardner & Gerdes, 2015). This suggests that it is important to identify ADHD symptoms in preschool children. Early detection of ADHD risk is useful in developing appropriate intervention programs.

The diagnosis of ADHD can be made as early as 3 years old or during preschool. Early detection of ADHD symptoms is done using a behavior rating scale with a certain cut-off score, where one of the

measuring instruments used is the Abbreviated Conner's Teacher Rating Scale (Conners et al., 1998) which has been translated into Indonesian. If it exceeds the cut-off score of the assessment results, the child has a high risk of ADHD (Juniar & Setiawati, 2014).

Meta-analysis literature review research found that the global prevalence of ADHD in children aged 3 to 12 years was 7.6%, while the prevalence of ADHD in children aged 12 to 18 years was 5.6% (Salari et al., 2023). The prevalence of ADHD in children in Asian countries such as China, Hong Kong, and Taiwan is 6.3% (Liu et al., 2018). However, there is no overview of the prevalence of ADHD in the paediatric population in Indonesia. This study will add to the picture of cases in Indonesia.

Research on early detection of ADHD risk has been conducted in Indonesia. Early detection research of ADHD with ACRS was conducted in one of the hospitals in Samarinda (Al-Ahmadi et al., 2024) and in one kindergarten school in Yogyakarta (Susilowati et al., 2021). In addition, ADHD early detection research was also carried out by counting the number of ADHD events in one of the hospitals in Kudus (Tristanti et al., 2020) and using growth and development observation sheets in one of the schools in Yogyakarta (Kurniawati & Ashari, 2021). These studies show that early detection of ADHD has been carried out in Indonesia, but not much and not evenly.

Early detection of ADHD risk in preschool children needs attention because of its impact on children's social competence. Research on early detection of ADHD risk for preschool children has been conducted in several cities in Indonesia, but does not represent the prevalence of ADHD in all provinces in Indonesia. In addition, only two of the four studies used ACRS as an early detection instrument. What is the picture of ADHD risk in preschool children using ACRS in East Java? This study aims to obtain an overview of ADHD symptoms in preschool children using ACRS in East Java.

METHOD

Research Design

This research uses descriptive quantitative research. Descriptive quantitative research is appropriate for answering research that wants to get an overview of phenomena in the population.

Participants

Permendikbud Number 1 of 2021 states that formal preschool education in Indonesia is kindergarten (TK) which is intended for children aged 4-6 years. The population in this study were preschool children in two districts in East Java, namely Sidoarjo District and Pasuruan District. The sample size was determined using an online sample size calculator. This calculator calculates the minimum number of samples needed to meet the desired statistical limitations by considering several parameters, namely 95% confidence level, 5% Margin of Error, and Population Proportion of 9.4%. The determination of the population proportion value of 9.4% refers to the proportion of the number of early childhood in East Java in 2023 according to BPS. Based on these calculations, the minimum number of samples that meet the criteria is 131.

Measurement

The instrument used to describe ADHD symptoms in this study is the Abbreviated conners rating scales (ACRS) Indonesian version which consists of 10 questions. There are four answer options for each question consisting of 0 (Not found), 1 (sometimes), 2 (Often found), 3 (Always present). If the total value obtained is less than 13 then it is in the Normal category. If the total value obtained is more than equal to 13, it is categorized as ADHD Risk. ACRS has been validated at a cutoff score of 13 with a sensitivity of 90.1% and specificity of 93.94% (Juniar & Setiawati, 2014).

The instrument was printed and given to the teacher. Instructions for filling out the instrument were given by a research assistant with a bachelor's degree in psychology.

Data analysis

The data analysis used is univariate data analysis in the form of percentages to get a description of

symptoms based on research instruments. the results of data analysis are presented in tabular form.

RESULTS

This study involved 202 learners in four schools. Two schools were located in Sidoarjo district and two schools were located in Pasuruan district. All were located in East Java province. Table 1 shows that more of the study participants were from Sidoarjo district (52%) than Pasuruan district (42%).

Table 1. Participant Distribution by District

No	District	F	%
1	Sidoarjo	106	52
2	Pasuruan	96	48

Source: Data research

The results of early detection using ACSR show that as many as 60 students or as much as 30% of the research sample have a risk of ADHD. Conversely, as many as 142 students or 70% of the research sample fell into the normal category. This risk assessment is based on the calculation of the total score according to the ACRS cut off score.

Table 2. Early Detection Result by ACRS

No	Category	F	%
1	ADHD Risk	60	30
2	Normal	142	70

Source: Data research

When analyzed by district, 32 out of 106 children or 30% of the sample in Sidoarjo District have ADHD risk. A total of 28 out of 96 children or 29% of the sample in Pasuruan District had a risk of ADHD. There was no significant difference between the two districts.

Tabel 3. Gambaran Gejala ADHD pada Kelompok Berisiko ADHD

ACRS	Frekuensi per Bobot Nilai n (%)				Total* (%)
	3	2	1	0	
1	30	21	9	0	60
	50%	35%	15%	0%	100%
2	14	31	15	0	60
	23%	52%	25%	0%	100%
3	11	32	14	3	60
	18%	53%	23%	5%	100%
4	17	22	20	1	60
	28%	37%	33%	2%	100%
5	17	23	17	3	60
	28%	38%	28%	5%	100%
6	16	25	18	1	60
	27%	42%	30%	2%	100%
7	12	22	25	1	60
	20%	37%	42%	2%	100%
8	11	23	22	4	60
	18%	38%	37%	7%	100%
9	9	30	19	2	60
	15%	50%	32%	3%	100%
10	8	31	18	3	60
	13%	52%	30%	5%	100%

Source: Data research; *Total: Number of children with ADHD risk category

A score of 3 indicates that the symptom is always present or always appears. The order of symptoms based on the highest percentage is symptom number 1 (50%), 4 (28%), 5 (28%), 6 (27%), 2 (23%), 7 (20%), 3 (18%), 8 (18%), 9 (15%), and 10 (13%).

DISCUSSION

The findings showed that 60 out of 202 preschool children, or 30% of the entire sample, were at risk of ADHD. When traced further in each district, an

equal percentage of risk was found. In Pasuruan district, 28 out of 96 preschool children (29%) were at risk of ADHD. In Sidoarjo district, 32 out of 106 preschool children (30%) were at risk of ADHD. This finding shows that the percentage of ADHD risk for all districts and between districts is relatively the same at 30%.

The ADHD risk in this study, which is 30%, is lower than the ADHD risk in a study at a kindergarten in Yogyakarta which found an ADHD risk of 44.4% (Susilowati et al., 2021). Both ADHD risk values, 30% and 44.4%, show that the ADHD risk is higher when compared to the prevalence of ADHD in the world. The recorded prevalence of ADHD in preschool children is 5%-26% (Juniar & Setiawati, 2014).

Based on symptoms, preschool children at risk of ADHD (n=60) were found to have symptoms No 1 (50%), 4 (28%), and 5 (28%) with a score of 3 (always present). Symptom No. 1 is “Tireless, or excessive activity”, symptom No. 4 is “Failure to complete activities that have been started; short attention span”, and symptom No. 5 is “Continuous moving of limbs or head”.

The finding of the most prevalent symptom in this study is the same as the most prevalent symptom in study in Samarinda (Al-Ahmadi et al., 2024), namely the symptom “Tirelessness, or excessive activity”. However, there are different findings from the 2nd and 3rd most common symptoms. If in the previous study it was symptom No.7 “His requests must be met immediately; easily becomes frustrated” and No. 6 “Lack of attention, easily distracted”, then in this study it was symptom No. 4 and No. 5 as mentioned in the previous paragraph.

This study provides an overview of ADHD risk in preschool children using the ACRS instrument in two districts in East Java Province with a larger sample size than previous studies. This study also found that the percentage of ADHD risk in preschool children has a value that is not much different from similar existing studies. This finding suggests that the risk of ADHD in preschool children needs attention.

This study has not provided an overview of ADHD risk in preschool children by considering demographic factors such as gender and family socioeconomic status. Gender can be considered in ADHD risk research although there are still differences in results. Where there are studies that find no differences in ADHD symptoms based on gender (Almagor et al., 2011), but there are other studies that find differences in ADHD symptoms based on gender (Arnett et al., 2014; Martin et al., 2024). This study also cannot provide an overview of the impact of ADHD symptoms on preschool children's social competence.

CONCLUSION

The risk of ADHD in preschool children in this study was found in 60 out of 202 children or 30% of the study sample. This finding provides a new picture of the prevalence of ADHD, especially in East Java Province. This finding will provide additional data related to the risk of ADHD in preschool children.

Future research can consider demographic factors in creating a picture of ADHD risk. Future research needs to identify the impact of ADHD symptoms on social competence in preschool children.

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DECLARATION OF POTENTIAL CONFLICT OF INTEREST

Widyastuti, Nurul Hartini, and Nur Ainy Fardana Nawangsari does not work for, consult, own shares in, or receive funding from any company or organization that would benefit from this manuscript, and has disclosed no affiliations other than those noted above.

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