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The Effect of Emotional Condition and Auditory Skills on Communication Ability in Children with Autism Spectrum Disorder

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Abstract

Autism spectrum disorder (ASD) is characterized by deficiencies in social communication, social interaction, interests, and repetitive activities. Children with this disease have difficulty to control emotions, anger, aggression, fear of certain things, and sometimes suddenly laugh so that it can interfere in the communication process. This study analyzes the effect of emotional conditions and auditory skills on communication ability in children with ASD at the Technical Implementation Unit of Children with Special Needs, Sidoarjo, and the respondents of this research are 14 parents of ASD child. The research used comparative analytic with a cross-sectional design and regression test. The results show that there is a significant effect between emotional conditions with communication ability in children with ASD; if the emotional condition could be reduced as much as eight times, so the communication ability could be performed well. Similarly, auditory skills could significantly affect communication ability if it increased by roughly 1.5 times. This research concludes that it is considered essential to create a conducive emotional condition and improve the ability to hear in children with ASD so that they have excellent communication ability.

***Keywords**: Autism spectrum disorder (ASD), emotional condition, auditory skills, communication ability*

Introduction

Autism spectrum disorder (ASD) is a spectrum of several disorders characterized by deficits in social communication and social interaction and limited behaviors, interests, and repetitive activities. The word autism originated in 1943 when Austrian-born American psychiatrist Leo Kanner distinguished this disorder from schizophrenia. Kanner describes this disorder as the inability to interact with other people, language disorders that are indicated by delayed language acquisition, echolalia, sentence reversal, repetitive and stereotypical play activities, strong memory routes and obsessive desires to maintain order in their environment.

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One in 160 children worldwide is estimated to suffer from ASD. These estimates represent the average number and reported prevalence varies substantially in all the studies conducted. Based on epidemiological studies conducted over 50 years, the prevalence of ASD appears to be increasing globally. There are many possible explanations for this tangible improvement, including raising awareness, expanding diagnostic criteria, better diagnostic tools, and better reporting[1]. Based on 11 communities in the United States (Arizona, Arkansas, Colorado, Georgia, Maryland, Missouri, New Jersey, North Carolina, South Carolina, Utah, and Wisconsin), in 2012, 1 in 68 children identified as ASD. There has been no official survey of the number of children with ASD in Indonesia. In 2013 the Director of the Ministry of Health's Mental Health Development had estimated the number of autistic children in Indonesia to be around 112 thousand with a range of 5-19 years. This number

based on the count of autism prevalence of 1.68 per 1000 children under 15 years of age. With the number of children aged 5-19 years in Indonesia amounting to around 66 million, according to the Central Statistics Agency in 2010, the figure was 112 thousand[2]. In 2015 it was estimated that there are approximately 12,800 children with autism or 134,000 with autism spectrum in Indonesia.

According to the Head of East Java Education Agency (East Java), Suwanto, in East Java in 2009 there were 388 Special Schools with 13,159 students and 93 inclusive schools with special needs students 1,476 children with 15% of them were autistic children. In East Java, there are also several Technical Implementation Units for Children with Special Needs, one of which is the Technical Implementation Unit of Children with Special Needs in Sidoarjo Regency. Based on the recapitulation of data on children served in the Technical Implementation Unit of Children with Special Needs in Sidoarjo Regency in 2015 - 2018, the total number of children is 209 children. Of these, ten are inactive. Of 199 active children, 65 children had ASD. The number of autistic children in the Inclusion School from the level of Early Childhood Education to High School/ Vocational Middle School in Sidoarjo Regency in 2016 amounted to 88 children. Various studies conducted on autism show that half to two-thirds of children with ASD do not experience ordinary language and communication development so that they experience difficulties in language and communication[3]. Around 30-50% of individuals with autism spectrum disorder (ASD) remain at least verbal throughout their lives, with little or no functional talk[4]. Autistic children included in the category of extraordinary children, namely children with social and emotional disorders. Physically autistic children are no different from normal children. If an autistic child has normal intelligence, it is expected that the child could achieve a specific job. It only needs an emphasis on exercises for restoring body functions, adjustments, or prevocational. Conversely, if an autistic child has below normal intelligence, the possibility of a child lacking or unable to have a skilled vocational level. Children with ASD who develop oral communication continue to show an increased risk of delay/speech disruption at an early age and a significantly higher risk of speech errors and prosody and voice abnormalities[5].

This study analyzes the effect of emotional conditions and listening skills on communication skills in children with ASD. The benefits of this study are to find effective methods for the learning process of ASD children in improving communication skills.

Material and Methods

The research used comparative analytic with a cross-sectional design. Data collected through questionnaire and analyzed by regression. The subjects of this study were parents of children with ASD in the Technical Implementation Unit of Children with Special Needs in Sidoarjo Regency, totaling 14 people.

Results and Discussion

The regression test results show that there is a significant influence between emotional conditions and communication skills in children with ASD with a value of p = 0.021 and regression models 155.294 - 8.002 which means excellent communication skills if the emotional condition decreases by 8.001 times. Likewise, with listening skills with communication skills, there is a significant influence with p = 0.002 and a regression model of 0.063 + 1.546, which means excellent communication skills if listening skills increased by 1.546 times.

Table 1. Autism Spectrum Disorder Children in Technical Implementation Units of Children with Special Needs in Sidoarjo Regency in 2018

No	Characteristics	Frequency	Percentage
1	Age:		
	5-7 years	5	35.7
	8-10 years	8	57.1
	11-13 years	1	7.2
		14	100

Cont... **Table 1. Autism Spectrum Disorder Children in Technical Implementation Units of Children with Special Needs in Sidoarjo Regency in 2018**

2	Sex:		
	Male	10	71.4
	Female	4	28.6
		14	100
3	School level:		
	Elementary school grades 5-6	1	7.1
	Elementary school grades 3-4	5	35.7
	Elementary school grades 1-2	2	14.3
	Special elementary school grades 1	1	7.1
	Kindergarten	3	21.5
	No school	2	14.3
		14	100

Rosengren[6] defines communication as a purposive subjective interaction through human language that has a dual articulation based on symbols. According to Kowalski[7], children's communication skills could be observed in the following six areas. The first is the area of social interaction illustrates the child's ability to interact with other individuals, friends, smaller children, or adults. The second is the area of social communication that compares the ability of individuals to communicate with others using verbal and nonverbal languages. The third is that the academic communication area provides an overview of the level of individual social skills that commonly seen in academic settings. The fourth is the non-verbal communication area describes the ability of individuals to recognize and use non-verbal communication. The fifth is the area perspective taking describes the ability of an individual to recognize the other person's point of view, interests, and feelings of others, and also other people's problems. The last is the emotional-social area describes the ability of an individual to recognize his emotional state and the emotions of others and use the right words to describe those emotions[7].

The communication development in autistic children is very different, especially in children who experience severe obstacles in language acquisition and speech. Children with ASD have difficulties in communication due to problems in the language (verbal and nonverbal), which related to the existence of central nervous system disorders[8]. Three locations suspected of having different patterns compared to normal children are cerebral-brainstem circuits, limbic system, and cerebral cortex circuits. This condition is allegedly related to disorders of cognitive development, language, emotions, and social interaction. In some instances, emotional problems in children with ASD vary in their forms.

Some previous studies have found that children with ASD experience an inability to make useful contacts with others and have difficulty reading other people's expressions, have difficulty recognizing certain emotions, and have difficulty expressing their emotions. Philip et al.[9] found a substantial emotional recognition deficit in the face, voice, and body among adults with ASD. The limbic system is one part of the brain that has abnormalities in autistic children has a vital role in the emotional process in children with ASD. Disorders in the limbic system, which is the center of emotion results in autistic children having difficulty controlling their emotions, quickly raging, angry, aggressive, crying, afraid of certain things, and suddenly laughing. Also, children become hyperkinetic, aggressive, refuse to do activities for unclear reasons, bang their heads, bite, scratch, or pull hair[10].

One of the functional areas of the central nervous system that is impaired is sensory processing. Children with sensory processing disorders cannot integrate the emotional data that enters and interprets it from various perspectives. Emotional processing can be confused by those who are too reactive or less reactive. Sensory reactivity or processing disruption can cause children to misinterpret emotional information from the surroundings resulting in inappropriate or extreme emotional reactions[11]. Emotional problems that occur

in children with autism will affect their ability in communication.

Williams et al.[12] suggest that children with autism have imitative problems that may be related to abnormal functions of "mirror neurons" (MNs). These neurons encode for the same action, whether it is felt or done[13]. Kohler et al.[14] showed that "mirror neurons" in the F5 area of the monkey brain responded to sound and saw action. Cells in the superior temporal sulcus possess MN properties, and these two areas also associated with cross-capital binding and audiovisual integration in speech perception[15,16]. The superior temporal sulcus is also an area that involved in autism psychopathology because of its role in detecting the direction of attention of other individuals and understanding mental states communicated by eye movements[17].

According to Ayres[18] research, children receive information in a sequence, from the skill of touching to vision, then to hearing, and cognitive skills. Children must fulfill the requirements in the form of maturity in several skills for language learning and communication, namely attention skills, visual skills, auditory skills, physical skills, imitation skills, and cognitive skills. Meanwhile, the fundamental problem for children with ASD is a short attention span, which affects information storage (obtained from visual, auditory, and tactile sensory devices) and cognitive function. Excellent listening skills support the ability to communicate in children with ASD.

Children's auditory sensitivity could change with development[19,20]. Some levels of necessary hearing skills are related to the acquisition of ordinary language, school readiness, and academic achievement, especially reading[21].

Conclucion

Emotional conditions affect listening skills and communication skills in children with Autism Spectrum Disorder.

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