

Corelation Study: Emotion Recognition and Verbal Skills in Children With Autism Spectrum Disorder

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Abstract: Children with ASD have difficulty in recognizing other people's emotional expressions. Rooted in the weakness of the cognitive process in understanding the feelings of others and impacting the ability to establish relationships with others. This study aims to explore the relationship between the ability to recognize the basic expressions with verbal skills, also the ability to understand simple commands, and social motivation. The method used in this study is quantitative. The descriptive study was conducted to describe the response of 15 students with ASD trough the treatment. The data analysis technique uses Kendall's Tau. The total of 8 subjects or 53.3% couldn't recognize emotional expressions, 28.7% can recognize emotional expressions, and 20% can somewhat recognize emotional expressions. The total, 40% can answer simple questions and express their wishes verbally. A total of 33.3% experienced echolalia. While 26.7% fall into the nonverbal category, meaning that they cannot speak or have very limited speaking skills. There is a significant relationship between emotional recognition skills with an understanding of simple commands and social motivation, and there is a relationship between speaking skills or oral skills with an understanding of simple commands and social motivation.

1 INTRODUCTION

Barriers to social interaction, communication, and limited behaviour generally characterise children with autism spectrum disorder (ASD). These three lacks are known as the *triad of autism*. DSM V use two criteria in defining ASD, namely the existence of difficulties in developing social communication, limitations in interest and repetitive behaviour (APA, 2013). Autism spectrum disorders often have accompanying barriers. Children with ASD are estimated to have comorbidities with ADHD around 30% and have comorbidities with intellectual disabilities or *intellectual disability* between 50-70% (Matson & Goldin, 2013).

Children with ASD have difficulty recognising other people's emotional expressions. This is closely related to personal capacity, which is social cognition. Social cognition is a cognitive process of perceiving

and interpreting stimuli to construct knowledge about our thoughts and the minds of other people around us (Brüne, 2005). In other words, with social cognition, one can feel and make sense of other people's thoughts or mental states. Furthermore, according to (Brüne, 2005), research on social cognition can be grouped into two major themes. First, regarding the understanding of others (Theory of Mind or ToM and empathy), understanding of oneself (visual self-recognition, agency), and self-control (impulse control and reappraisal (judging)). Second, the process of interface or interconnection between individuals and other people.

The inability of ASD children to understand emotional expression has an impact on mastering poor social skills. Social skills develop gradually throughout the ages due to dynamic interactions between individuals and their environment. Children on the autism spectrum have severe barriers to

mastering social skills. Social skills are a set of behaviours displayed in a situation by individuals (Gresham, 2015). Social skills include; (1) the ability to select information and use it in interpersonal relationships; (2) the ability to use the information to direct behaviour according to goals; and (3) the ability to determine verbal or nonverbal expressions in the context of maintaining relationships (Bedell & Lennox, 2008).

The development of social skills in children can be explained through the theory of *Social Information Processing* (SIP). SIP theory provides a flow in each situation where the process occurs: interpreting instructions, clarifying goals, seeking general responses, selecting and implementing specific responses, and evaluating their achievements (Crick & Dodge, 1994). A child from his birth dynamically, in interaction with his environment, continuously uses the process flow to continue improving his social skills in dealing with various situations as part of his development process. So that children have a wealth of experience and can behave appropriately in the right situation. According to the SIP theory, the development process does not occur in children with autism spectrum. They draw from interactions with others, whereas social skills occur in the context of interactions with others. The fundamental problem in children with autism lies in their inability to imitate and play symbolically (Rutherford et al., 2020).

There is a capacity that is not well developed in children with autism spectrum, namely *Theory of Mind* (ToM). ToM refers to the social-emotional function of each individual. Through ToM, a child develops the ability to understand facial expressions, voice intonation, pay attention and give attention, for example, through eye contact, smiles, and other nonverbal expressions. In children with ASD, this capacity is undeveloped. Therefore, they do not have the skills to understand and express emotions (Dawson et al., 2004; Mazza et al., 2017) and are unable to form bonds with other people (Campbell et al., 2006; Klin & Jones, 2006) and appear to lack empathy (Blair, 2005; Dapretto et al., 2006).

The ability to recognise emotional expressions develops from childhood. Studies comparing the accuracy of recognising emotional expressions (through faces) in children aged 3 and 10 years have shown significant improvement (Schlesinger, 1980); 5-year-olds showed less accuracy than 7 and 9-year-olds (Tremblay et al., 1987). The accuracy of recognising facial emotional expressions is relatively stable when children reach the age of 10 years (Durand et al., 2007).

This research is basic research to find the relationship between the ability to recognise emotional expressions with the ability to speak, follow simple commands, and social motivation. The findings of this study serve as the basis for developing intervention strategies to develop skills in recognising emotional expression in children with autism spectrum disorders.

2 METHOD

The research subjects were 15 students diagnosed with ASD. The age of the research subjects is between 10 to 21 years. Data on recognising emotions is collected through tests with indicators mentioning emotional expressions, indicating emotional expressions, equating emotional expressions, and grouping emotional expressions. The emotional expressions used in this study are basic emotions, namely anger, sadness, joy, and fear. Data on speaking ability, understanding of simple instructions or orders, and social motivation were collected using an inventory filled in by the teacher. The recording was also carried out on all responses shown during the test process. The correlation between variables was tested using Kendall's Tau non-parametric correlation statistics. This test aims to determine the correlation between skills in recognising emotional expression and speaking ability, understanding simple instructions or orders, and data on social motivation. Descriptive descriptions at this stage are used as secondary data to help take justification.

3 FINDINGS

The ability of research subjects to recognise emotional expressions is shown in Figure 1. As many as 8 subjects or 53.3%, could not recognise emotional expressions. Some 28.7% could recognise emotional expressions, and some 20% of research subjects could somewhat recognise emotional expressions. This means that the ability to recognise emotional expressions is not consistent.

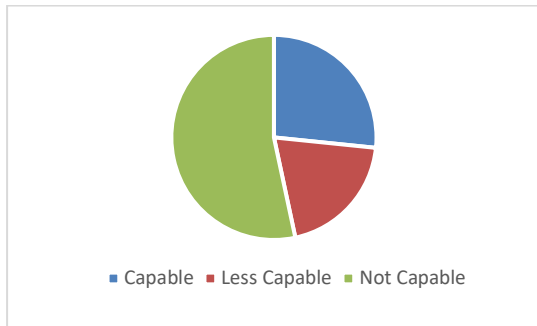


Figure 1: Emotional Expression Recognition.

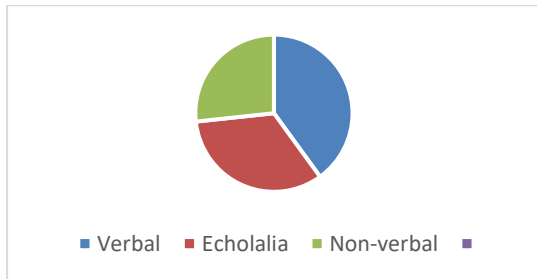


Figure 2: Verbal Skills.

The ability of the research subjects to speak or have *oral skills* can be seen in the pie chart in Figure 2. 40% of the research subjects could speak. This means being able to answer simple questions and express wishes verbally. 33.3% of research subjects experienced echolalia, meaning they could speak but were not used to expressing wishes or answering questions. They repeated every word heard. Meanwhile, 26.7% of the research subjects were in the nonverbal category, meaning they could not speak or had minimal speaking abilities.

The ability of research subjects to follow simple orders is as follows. Some 53.3% of research subjects are sometimes able to follow simple commands. This means simple commands must be repeated three to four times and given assistance. A total of 46.7% of research subjects were able to follow simple commands.

Likewise, with the percentage of social motivation research subjects. 53.3% of the research subjects lacked the desire to interact socially, and 46.7% desired to interact socially. The indicators used are the desire to pay attention to others, such as responding to invitations to shake hands, high fives, and answering greetings.

Table 1. Kendall's Tau Correlation Test.

		ER	OS	SO	SM
Emotion Rec	Correlation Coefficient	1.000	.451	.616*	.616*
	Sig. (2-tailed)	.	.061	.015	.015
	N	15	15	15	15
Oral Skills	Correlation Coefficient	.451	1.000	.808**	.808**
	Sig. (2-tailed)	.061	.	.001	.001
	N	15	15	15	15
Simple Order	Correlation Coefficient	.616*	.808**	1.000	1.000**
	Sig. (2-tailed)	.015	.001	.	.
	N	15	15	15	15
Social Motivation	Correlation Coefficient	.616*	.808**	1.000**	1.000
	Sig. (2-tailed)	.015	.001	.	.
	N	15	15	15	15

Kendall's Tau test results are presented in table 1. The criteria used to determine a relationship is if the results of calculating the P-value Sig. (2-tailed) less than 0.05. Based on the results of the analysis in table 1, it is known that the value of Sig. (2-tailed) that meet the criteria of less than 0.05 are as follows: (1) the relationship between emotion recognition and understanding of simple commands; (2) the relationship between emotion recognition and social motivation; (3) the relationship between speech skills or oral skills with understanding simple commands; (4) the relationship between speech skills or oral skills with social motivation.

4 DISCUSSION

Children's ability to recognise emotional expressions depends on the task given. When children without disabilities were asked to point out which (two) facial images expressed happiness, sadness, anger, and surprise, they had near-perfect accuracy by age 6. Conversely, when they were asked to choose two expressions of the same emotion from a third facial expression, good accuracy was achieved at the age of 10 years (Bruce et al., 2000). The same study showed the same results, where subjects were asked to match an image among four images of neutral emotional expressions, surprise, joy, or disgust (disgust). The results showed an increase in accuracy between the ages of 6 to 8 years. Peak performance was achieved in adulthood (Mondloch et al., 2003). The development of recognition of emotional expression in ASD children is very late. At the age of 5-7 years, they show the ability to recognise facial expressions; some even start at 8-12 years (Brosnan et al., 2015).

This study found that 53.3% of research subjects could not recognise emotional expressions. This is consistent with Ozonoff's research that children with ASD have deficits in emotional perception (Ozonoff et al., 1990). The problems of ASD children in recognising emotional expression also occur in high-functioning children (Mazefsky & Oswald, 2007). Both high-function and low-function ASD children at the age of 10, both categories can recognise bad emotional expressions (Lindner & Rosén, 2006).

Several studies have concluded that ASD children have problems in language development, both expressive and receptive (Charman et al., 2003); (Luyster et al., 2007). Language skills in ASD children predict the ability to recognise emotional expressions (Taylor et al., 2015). Correlation testing in this study concluded that there is a relationship between the ability to recognise emotional expressions and understand simple commands. Understanding simple commands is part of understanding receptive language.

The conclusion of this finding shows further evidence that there is no relationship between speaking ability and the ability to recognise emotional expression. At the same time, speaking ability is expressive language ability. This study's findings align with Piggot's research that the emotional perception of high-functioning ASD children is not related to language skills in ASD children (Piggot et al., 2004). Different findings about the relationship between the ability to recognise emotional expression and language skills because the language skills variable is not specified between receptive and expressive language. This separation is essential because more than 30% of ASD children have limited verbal abilities or are known as non-verbal (Tager-Flusberg et al., 2017).

Social motivation is the desire to pay attention to those around them and interact with those around them. Social motivation is the desire or drives to relate to other people (Jaswal & Akhtar, 2019). This study's findings indicate a relationship between social motivation and the ability to recognise emotional expression. However, only 46.7% of respondents were considered to have social motivation.

The findings of this study provide the basis for the importance of appropriate interventions in developing the ability to recognise emotional expression in children with ASD. Interventions for children with autism spectrum disorders in developing their ability to recognise emotional expressions are carried out by practising recognising facial expressions. Facial expressions describe a person's emotions or feelings (Christinaki et al.,

2014). Children with autism disorders often fail to recognise emotional expressions through the face (Lerner et al., 2013), (Uljarevic & Hamilton, 2013) or parts of the face as crucial clues to emotional expressions, such as the eyes, mouth, or forehead (Kuusikko et al., 2009). The stages of intervention in introducing emotional expressions through facial expressions are carried out in several stages, 1) starting with identifying basic emotional expressions; 2) followed by interpreting the meaning of emotional expressions; 3) using information about emotional expressions in the proper context; 4) generalising in recognising emotional expressions; and 5) in the end being able to act or display appropriate behaviour according to emotional expressions in their environment (Adegbola et al., 2008).

5 CONCLUSION

Children with autism spectrum disorders can recognise emotional expression and speaking skills, understand simple instructions and have diverse social motivations. Based on Kendall's Tau statistical test concluded. That there is a significant relationship between the ability to recognise emotions with an understanding of simple commands and social motivation, and there is a relationship between speech skills or oral skills with an understanding of simple commands and social motivation.

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