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## NUTRITIONAL STATUS AND SOCIALIZATION ABILITY IN CHILDREN WITH AUTISTIC DISORDER

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### ABSTRACT

**BACKGROUND** : Autism is a pervasive development disorder that affects abilities in social interaction, communication and behavior. The disorder is seen before a three year old child. Children with autistic disorders have behavioral disorders called autistic behavior. Autistic behavior is classified into two types, namely excessive behavior and deficit behavior. The purpose of this study was to determine the relationship between nutritional status and socialization ability in autistic children.

**SUBJECT AND METHODE** : This study is a correlation study conducted with a cross sectional approach. The population in this study were 35 autistic children in SLB Bintoro. The instrument used was a questionnaire on the nutritional status of autistic children to assess nutritional status, and a Social Skills training (SST) sheet to assess the socialization skills of autistic children. Data analysis was carried out by using the Spearman Rho correlation statistical test.

**RESULTS** : The results showed that the results of the study using the Spearman RHO test for nutritional status on the socialization abilities of autistic children showed that a significant value of  $p = 0.000$  because the value of  $p < 0.05$ , there was a significant relationship between nutritional status and the ability to disseminate information on autistic children shows a very strong relationship.

**DISCUSSION** : Nutrition status is one factor that greatly affects the socialization capabilities of autistic children.

Key words : Nutritional Status, Socialization Skills, Autism

### INTRODUCTION

Autism is a pervasive developmental disorder that affects the ability of social interaction, communication and behavior. The disorder is seen before the child is three years old. Children with autistic disorder are having behavior called autistic behavior. This behavior is classified into two types, namely excessive behavior and deficient behavior. Excessive behavior is hyperactive and tantrum behavior such as screaming, flapping, biting, clawing, hitting and including self abuse. Deficient behavior is a behavior that cause speech disorder or lack of social behavior such as laughing or crying without a reason and daydreaming (Nurhidayati, 2015).

The data taken from Health Basic Research (Riskesdas) 2013 stated that the number of autistic patients reach 112.000 people out of 253,60 million people in Indonesia. According to the Chief of the East Java Education Office, around 2009 in East Java there were 388 special school for children with special need with 13,150 students. There are 93 schools with children with special needs 1,478 children and 15% are autistic children. The preliminary study in Jember Regency



found 60 children suffering from autism at school age, from 6 SLB spread across Jember Regency (Jember Regency Education Office, 2018).

Behavioral disorder in autistic children are influenced by various factors. One of them is food, especially foods that contain gluten. This occurs because the type of protein is difficult to digest by the body. There are some abnormalities found in gastrointestinal membrane of autistic children, which is the abnormalities of the pores and permeability of intestinal mucosal. Gluten in autistic children is only broken up into polypeptides. These polypeptides then absorbed into the bloodstream and circulate in the form of gluten. The gluten bound to receptors in the brain that affect mood and behavior so that the binding of these two substances can affect behavioral disorder in autistic children. Therefore, one way to reduce behavioral disorders in children with autism, is avoiding food that contain gluten (Nurhiidayati, 2015).

Social skill training is one way that believe can improve socialization skill in autistic children. It can be taught individually or by group. Social skill training are indicate for children with interaction difficulties, social phobia and anxiety. This training conduct to improve children's ability to interact in an environment, so that they could improve their self control, improve the ability to do activity independently or together with friend and improve interpersonal skill by training to socialize with people and environment (Landeen, 2001 : Kneisl, 2004). Walter (2011) stated that social skill training could become standart therapy for psychiatric nursing specialist and need to be socialized to all health service order. A good autistic nutritional status merger with social skill training are believed to improve social skill of an autistic children significantly.

The preliminary study has been done in May 2019. The result show that most parent of autistic children are not pay attention about the food consume by their children. It should appropriate with the right nutritional status according to physician's advice, so that it could affect socialization ability in autistic children.

## METHODE

This study is a correlation study conducted with a cross sectional approach. The population in this study were 35 autistic children in SLB Bintoro. The instrument used was a questionnaire on the nutritional status of autistic children to assess nutritional status, and a Social Skills training (SST) sheet to assess the socialization skills of autistic children. Data analysis was carried out by using the Spearman Rho correlation statistical test.

## RESULTS AND DISCUSSION

Data collection has been done at May 2019 and involving 35 autistic children in SLB – B autism TPA Jember. The results are showed in table 1.

Tabel 1. General Characteristic of Respondents (Source: Primary Data Research, 2019)

Characteristic	Amount	Percentage
Age		
4 – 9 years old	4	11,4
10-14 years old	13	37,1
15-19 years old	15	42,9



	>20 years old	3	8,6
Gender	Male	28	80,0
	Female	7	20,0
Nutritional status	Good	23	65,7
	Not good	12	34,3
Autistic level	Mild	17	48,6
	Moderate	11	31,4
	Severe	7	20,0

This research is done at Jun 2019. There were 35 respondents consist of 28 male and 7 female students. Respondent with good nutritonal status counted 23 children and 12 children are not. Parents stated that they do ot provide good nutrition is because of ignorance about gluten and some are of the opinion because there is no effect whatsoever. Some parents who have given a gluten free diet claim that there is a difference if they are on gluten diet, the children are more communicable and not do repetitive movement.

Gluten considered as a toxic since the body of an autistic person do not produce enzyme to digest the protein. Undigestabel protein then turned into chemical component called opioid which is like morfin, opium and heroin which work as a toxic which is interfere brain function, immunity and behavioral disorder (Abata, 2014).

Removing food that contain wheat will reduce the intake of vitamin and minerals in child's body. That is why children need to be given enough vitamin and mineral so that they would grow healthy. Vitamin and minerals should be provide under supervision of professional (physician or nutritionist) and if its not done then the metabolic process of digestion will be disrupted (Nugraheni, 2008).

Autistic behavior is a special behavior disorder of an autistic children. Those behavior include hyperactivity (unpurposed movement), inability to maintain eye contact with others, does not repond if called, unreasonable crying or laughing and some other indicator of special behavior. Some respondents of this research are found to have behavioral disorder which is 20% respondents are having severe autism, 31% respondents are having moderate autism and 48,6% respondents are having mild autism level. The reduction of autistic behavior commonly in form of reduction of hyperactive intensity to a subject and subject ability in doing an instruction from theraphyst, ability to concentrate and starting to put up words to speak.

Some factors could interfere autistic behavior such as therapy intensity, methode of therapy, parent and family involvement and diet therapy. According to results of questionnaire given to subject's parents, most of the parents claim that there a correlationship between autistic behavior and child's eating habit. Behavioral disorder such as hyperactivity are believed to decrease since the parent reduce the frequency in giving martabak or sweet martabak that contain flour.



Dietary pattern of an autistic child must contain a number of nutrient, especially high in carbohydrate, protein, and calcium to fulfill needs during growth and development. The experts agree that people with autism must have good nutritional status by doing gluten diet. Gluten diet is believed could improve digestive disorders and also reducing symptoms or improve behavior of an autistic child. Even gluten and protein came from the same class, gluten are derived from wheat such as flour wheat, oat dan barley (Seroussi, 2004).

Tabel 2. Analysis Behavior and Gluten Consumption

		Free gluten	Perilaku anak
Spearman's rho	Free Gluten	Koefisien Korelasi	1.000
		Sig. (2-tailed)	.653**
		N	.000
		35	35
Perilaku Anak Autis	Perilaku Anak Autis	Koefisien Korelasi	.653**
		Sig. (2-tailed)	1.000
		N	.000
		35	35

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 3. Coefficient Value

Coefficient	Correlational Power
0,00	No correlationship
0,01-0,09	Less correlationship
0,10-0,29	Weak correlationship
0,30-0,49	Moderate relationship
0,50-0,69	Strong relationship
0,70-0,89	Very strong correlationship
>0,90	Near perfect correlationship

According to the table Spearman RangE (Rho) test show that the analysis from 35 respondent produce p value 0,000 < 0,05. It mean H1 accepted, there is a correlationship between nutritional status and socialization ability of autistic children in SLB B autism TPA Jember. Coefficient value of these two variable is 0,653 which mean show a very strong correlationship.

This research produce p value <0,05 mean hypothesis accepted. In the other words there are correlationship between nutritioanl status and social ability of autistic children in SLB B Autism TPA Jember. Correlation coefficient value is 0.653 mean these two variable has very strong correlationship.



One of the action that can be done to prevent hyperactive behavior in autistic children is by doing regulation of food selection. Food is a matter that must be considered for people with autism. Their food commonly same as healthy children in general, which is healthy and meets balanced nutrition (Kusumayanti, 2011).

Selection of foods that are in accordance with the diet must be given appropriately in order to prevent malnutrition in autistic children. Children should not be allowed to choose their own food. Autistic children must be given special diet according to symptoms experienced. Autistic children is also must be avoid food that contain monosodium glutamate and artificial food coloring. This kind of food could lead to changing of behavior and emotional of an autistic person after consume food that contain gluten. In the other hand some food contain artificial food coloring could destroy DNA that can lead to genetical mutation and disturbing the function of brain and nervus. Artificial food coloring also can cause allergies in autistic children (Ramadayanti, 2013).

Analytical statistic using Spearman rho about nutritional status to social ability of an autistic children showing significant p value 0.000. since p value < 0.05 it can be stated that there are significant influence between nutritional status to social ability of an autistic children. This result is in line with the research conduct by Rirmie Arfiriana Pratiwi (2013) which is stated that there are correlationship between the frequency of consuming food free gluten and free cassein with behavioral changing af an autistic person. The more they consume food containing gluten and cassein the more frequent they will have behavioral changing. It is all happen due to incomplete breakdown of protein contained in gluten and casein. Gluten and casein are part of short chain amino acids called peptide. Normally peptides are absorb in a little amount by the body then eliminate through feses. And this metabolism are not happen in autistical person.

Hypermeability of intestinal mucosa in autistical person causing this peptides to increase. Some are absorbed into the circulation and some are absorbed to the brain. Peptides that travel to the brain are attach to opioid receptors in the brain and change it functions like morphine. Gluten peptides will form glutemorphin and gliadimorphin while casein peptide will change into caseomorphin. The two substance will affect central nervus system so that it can lead to behavioral disorder. This statement is in accordance with observations that have been carried out in this study that autsitic person who have low frequency habits in consuming foods containing gluten and casein will have more directed behavioral changes compared to them who have high frequency in consuming food that contain gluten and casein. Some of the bhavioral changes including the children become more calm, easily given instructionat at therapy, not easy to cry or angry.

## 1 CONCLUSION AND RECOMMENDATION

According to analytical statistic using Spearman Rho test about nutritional status to social ability of an autistic children showing significant p value 0.000. since p value < 0.05 it can be stated that there are significant influence between nutritional status to social ability of an autistic children. Corelation coefficient value is 0.653 show a significant correlationship

From the result above some recommendation that coul be given as follow : SLB B autism TPA Jember should maintain good nutritional status by doing free gluten diet and involving family to



1 improve the knowledge of the client and family about autistic children's nutritional status so that they could have good socialization ability.

The family of an autistic children should have a full commitment in free gluten diet programme so that the children will have a good nutritional status as specified so that their condition is controlled and their social ability will improve.

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