

## Conference Paper

# The Impact of Psychoeducation on Healthy Diet in Children with ASD during the Covid-19 Pandemic

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## Abstract

Covid-19 has created new habits in society, including for parents of children on the autistic spectrum. Parents become less confident in food that is processed outside the home, however Gluten Free Casein Free (GFCF) food ingredients which can be beneficial for children on the autistic spectrum, can be acquired and prepared at home. This research is an experimental study using One Group Pre-Test Post-Test and sample selection of purposive sampling technique. There were 3 people who consented to be the subject of this study. The instrument used was the comprehension instrument which consisted of 3 aspects: cognitive, affective, and psychomotor. There was also a control table for the application of the healthy diet to children to validate the consistency of parents in adopting a healthy diet after receiving psychoeducation. The analysis technique used the Mann-Whitney with the results showing a significance of 0.046 ( $p < 0.05$ ), which means that there is a different in the score between the pre-test and post-test results in the subject group. The results show that a GFCF diet education improves parental understanding of the healthy diet of Children with ASD.

**Keywords:** parents of children with autism spectrum disorder, psychoeducation, understanding healthy diet.

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## 1. Introduction

One of Indonesia's particular problems is the increment of children diagnosed with autism spectrum disorder (ASD) every year. Based on pre-existing data, it is known that the prevalence of autism in Indonesia has increased from 1 per 1000 population to 8 per 1000 population, with a figure reaching 475,000 people, which becomes one of the problems in Indonesia (Astuti, 2016). The data managed by Kementerian Pendidikan dan Kebudayaan (2016) indicated that the number of students with ASD in Indonesia is 114,085 children. In East Java, there are 16,040 of them, placing East Java as the second top province with the highest number of children with autism in Indonesia.

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Malang City is a city of education for children's education in general and special education for special needs children. This is proven by the facilities in the form of inclusive schools, special schools, and therapy services for children with special needs. Malang City was also chosen as the city with the first autism service center in East Java that provides all therapy facilities (Yuliana, 2012). Thus, education for children with special needs in Malang City increases with the existence of several special schools, inclusion schools, or therapy places, such as UPT. Layanan Pendidikan ABK Kota Malang., SLB Autis of Universitas Negeri Malang, Malang River Kids Special School, A plus Therapy, Malang Autism Center, Yayasan Anugerah Batu, Bhakti Luhur Special School, YPAC Kota Malang, Malang Psycho Care, SDN 2 Kebonsari, SD Ketawanggede, SDN Kedungkandang.

Autism Spectrum Disorder, or better known as autism, consists of several disorders. Lubis & Suwandi (2016) stated that Autism Spectrum Disorder is a group of situations of delays and deviations in the development of social skills, disorders in language and communication, and behavior. Kusumayanti (2011) writes that the causative factors for ASD are not yet ascertained, but psychological, physiological, sociological, and genetic factors are involved. Mundy (2012) describes the behaviors that arise from children with the autism spectrum, namely, with the presence of particular disorders in child development, actions to mimic other people's actions, and a tendency not to respond to voices or information from others. From this explanation, the researcher concluded that ASD is a group of delay and deviation situations in children.

In addition to the disorders described above, children on the autism spectrum also have digestive disorders affecting their behavior. This digestive disorder is related to the food consumed by the children. Food is something that must be considered in children with an autism spectrum disorder in order to deal with digestive disorders they experienced. Children with ASD are not allowed to consume foods containing gluten and casein (Ramadayanti & Margawati, 2013). Gluten is a protein that is usually found in flour and other flour-based products. Based on the references summarized by the researcher, gluten is easily found in wheat, Cerealia, and wheat flour.

Meanwhile, casein is a part of the protein found in milk and other milk-based products. Both of these proteins are dangerous for children with ASD to consume without control or supervision, and this needs to be understood by their parents. The two proteins are dangerous for children with ASD because they can affect the child's digestive wall and affect the behavior that appears in children. Usually, children will display hyperactive and unfocused behavior when asked to communicate. Based on Puspitha and Khairun's (2016) research, if a urine examination is carried out on children with ASD who consume

excess gluten and casein, two abnormal peaks are found in Children with ASD, namely beta casomorphin and peptide. The pandemic Covid-19 has created new habits in society, including for parents of children on the autistic spectrum. Parents become less confident in food that is processed outside the home, so parents need a reference to Gluten Free Casein Free (GFCF) food ingredients for and can be applied at home.

Previous researchers have conducted a preliminary study at SLB Autis Universitas Negeri Malang and UPT.Layanan Pendidikan ABK Kota Malang. This study revealed that there is a problem with parents' understanding of a healthy diet. The healthy diet in question is the implementation of the Gluten-Free Casein-Free (GFCF) diet therapy. Previous research disclosed that:

- 1) the GFCF diet affects children's behavior (Astuti, 2016). The effect of not applying the GFCF diet causes hyperactive behavior in children, thereby decreasing the child's focus in receiving information from outside of themselves, and

- 2) the results of the previous observations conducted by foregoing researchers emerged behavioral problems experienced by children with ASD where this problem is related to consumption of gluten and casein.

Based on the results of interviews conducted by researchers with therapists at the UPT Malang City Education Services for Children with special needs and UM Special Schools Laboratory, it is known that the consumption of gluten and casein in children with ASD is triggered by the lack of parents' comprehension regarding the dangers of consuming gluten and casein.

Several experts have disclosed the definition related to comprehension. According to Bloom (Khasanah, 2016), comprehension is the ability of a person to understand and comprehend something after it is known and recalled. Thus, comprehension is fundamental because it will affect the concepts formed by individuals concerning something. According to Rachmawaty (2014), comprehension is an individual result in behavior and is heavily influenced by aspects of knowledge and provides individual ability to understand a concept accurately. It is further explained by Sudjiono (2011) that comprehension is an activity of understanding something with the addition of a more detailed explanation of that something using one's own language. According to Muhsin and colleagues (2013), comprehension is the ability to grasp the meaning and context of information learned by individuals to solve problems. Based on the experts' definitions, the researcher concludes that comprehension is the capability of an individual to re-explain the information obtained without being limited by formal education.

The researcher's interviews with parents generally asserted that this therapy had an effect on children's behavior at school if it was applied consistently. However, parents

had not been consistent in the implementation. Parents argued that implementing a healthy diet for children by not providing foods containing gluten and casein cannot be done consistently due to several factors, namely: 1) lack of understanding of parents regarding healthy eating patterns or diet, 2) alternative ingredients that are difficult to find, and 3) lack of free time to make special meals for children at home.

Based on Astuti's research (2016), it is known that children with ASD have digestive disorders, which results in impaired function of the children's brain and the emergence of hyperactive behavior, thus, interfering with the process of receiving lessons at school.

One of the factors that cause parents not to adopt a healthy diet is the parents' lack of understanding. Interventions in psychology consist of counseling, psychotherapy, and psychoeducation. One of the solutions in dealing with the problem of poor parental understanding is to do psychoeducation. HIMPSI (2010) stated that psychoeducation is an activity carried out to increase understanding and or skills as an effort to prevent the emergence and or spread of psychological disorders in a group, community, or society. Besides, psychoeducation is also an activity that can increase understanding of the environment (mostly family) about the disorders a person experiences after undergoing psychotherapy.

There are two types of psychoeducation, namely psychoeducation with training and psychoeducation without training (HIMPSI, 2010). Psychoeducation by training is carried out directly, such as seminars, direct cooking training, or practicing the obtained theories directly. Meanwhile, psychoeducation without training is more of lecturing or giving explanations, distributing leaflets, pamphlets, public service advertisements, or other forms of providing education.

Psychoeducation is chosen as an intervention for parents' lack of comprehension of a healthy diet. Psychoeducation to parents is considered sufficient to increase understanding of healthy eating patterns because it has provided a brief explanation to parents about the healthy diet itself and how to make a healthy diet menu. The researcher also chose psychoeducation by lecturing because it is part of psychoeducation in the field of psychology and can be implemented by the psychology students.

Psychoeducation can be organized online, which was also implemented by González-Ortega and colleagues (2016) in the research titled "Online Psycho-Education to The Treatment of Bipolar Disorder: Protocol of A Randomized Controlled Trial." The study results by González-Ortega and colleagues (2016) illustrated that online psychoeducation eases bipolar patients to consult with psychologists, psychiatrists, and doctors. In addition, online psychoeducation is more effective at raising awareness than the usual offline one.

Previous research on understanding the consumption of gluten and casein has been carried out by Puteri and colleagues (2018) with the data collection method of using questionnaires and interviews. The study results indicated that maternal knowledge about autism and the source of gluten and casein ingredients is inversely related. The higher a mother's knowledge about gluten-free and casein-free diet, the lower the food containing gluten and casein the child will consume. Besides that, the level of an individual's nutritional knowledge affects their attitudes and behaviors in food selection, which in the end, will influence the nutritional status of children with autism. Until now, the researcher of this study has not found any kind of psychoeducation related to the parental understanding of the healthy diet of ASD.

Therefore, the researcher proposed the title "**The Impact of Psychoeducation on Healthy Diet Children with ASD in Pandemic Covid-19**" The reason for submitting this title is to determine the cognitive, affective, and psychomotor changes of the parents of children with ASD. PENDEKAR AUTIS is an acronym for Gluten-Casein Free Diet Psychoeducation, which includes material to increase knowledge, strengthen parents' attitudes and skills in implementing a healthy diet for children with ASD.

Besides that, the implementation of PENDEKAR AUTIS is carried out by conveying information from sources to participants, solving problems together, communicating between two parties, and finally creating self-assertiveness. Sub-material from PENDEKAR AUTIS are: 1) Getting to know children with ASD closely, 2) The Effect of Diet towards Children Behavior, 3) Nutrition of Children with ASD and GFCF Alternative materials, Inspirative Talks with Parents, and providing related material links and videos on how to make healthy eating menus for children with ASD.

Psychologists, nutritionists, and caterers will deliver these materials. The existence of psychoeducation in the form of lecturing or giving information provides a new and meaningful understanding for parents of children with autism. Thus, there will be an increase in cognitive, affective, and psychomotor aspects of the parents of children with autism, related to the healthy diet of children with ASD in Malang City. PENDEKAR AUTIS is psychoeducation that is carried out after knowing the initial concept or understanding of parents regarding the healthy diet of children with autism, which is packaged with lecture and discussion methods as well as support with the existence of a healthy diet module for children with ASD.

This study aims to obtain: (1) a description of the PENDEKAR AUTIS program (GFCF diet psychoeducation), (2) a description of parents' understanding of the healthy diet of children with autism, and (3) determination of the effects of giving PENDEKAR AUTIS (GFCF diet psychoeducation) to increase parents' understanding.

## 2. Literature Review

### 2.1. Autism Spectrum Disorder

Autism Spectrum Disorder or better known as autism, which consists of several disorders. As stated by Lubis & Suwandi (2016), Autism Spectrum Disorder (ASD) is a group of situations of delays and deviations in the development of social skills, disorders in language and communication, and behavior. In addition, children on the autistic spectrum also have digestive disorders that can affect children's behavior. Based on DSM V, the ASD diagnostic criteria are characterized by the presence of two general symptoms, namely deficiencies in social communication and social interaction as well as limited interests of children and behaviors that are shown frequently repeatedly (APA, 2013). Hallahan and Kaufman (2014) define autism as a collection of developmental disorders with three common characteristics, namely: 1) there is an impairment in social interactions in the form of children's eye contact, shown facial expressions, and body language, 2) there is an impairment in daily communication which indicates the child's lack of language development, echolalia, sentences that are used repeatedly and not in accordance with the situation, and 3) the limited interest and imagination of the child. Meanwhile, WHO (2011) defines autism as a disruption in the development of communication, social and behavior in children. Developmental disorders of children with autism usually appear before the age of three (toddler age) which causes the child to be unable to build social relationships, isolated from their own world which is expressed by repeated activities.

There are six disorders of digestive function in autistic children that are often experienced by children, namely, (1) lack of absorption of food nutrients, (2) disorders of nutrient metabolism, (3) imbalance of intestinal flora, (4) formation of panet cells that are not optimal, (5) increased permeability intestines, (6) endoscopic disorders consisting of inflammation of the esophageal tract, inflammation of the stomach, inflammation of the duodenum and inflammation of the large intestine (Astuti, 2016). Gastrointestinal problems in children with autism have problems, and certain types of food can be a factor triggering autistic symptoms. According to F. G. Winarno, (2013) these types of food are foods that contain gluten and casein because they are reactive, which affects the body's condition so that it can cause autistic symptoms, sugar because it makes students difficult to focus, soda because it has high levels of phosphorus which results in binding minerals to minerals. can not be used again and soy because in certain children are allergens or cause allergies. If some of these foods are avoided, it is hoped that autistic symptoms will reduce.

## 2.2. Understanding of Parents of Children with Autism

According to Bloom (Khasanah, 2016), comprehension is the ability of a person to be able to remember, understand and understand something after it is known and remembered. It is further explained by Sudjiono (2011) that understanding is the activity of understanding something with the addition of a more detailed explanation of something using his own language. Understanding is also related to knowledge, according to Martiani, et al. (2012), where knowledge is an aspect of individual understanding. Thus, understanding is a very important ability in a concept to define, describe or formulate a concept without imitating the words of others.

An understanding of autism is knowledge that includes all ASD information ranging from developmental disorders in children in terms of behavior, socialization, and language, which must be known by parents (2014). Therefore, knowledge about autism will help parents in understanding the habits of children who deviate, because having knowledge about autism will increase the ability of parents to raise children.

The understanding aspect is explained by Bloom with the following classification:

a. Cognitive Domain is the provision of new information for individuals about something, emphasizing aspects of general knowledge.

b. Affective Domain, consisting of aspects of acceptance, participation, assessment of attitudes and the formation of patterns of life, and organization. Each aspect includes a different focus.

- Aspects of acceptance, focus on the presence of a stimulus and pay attention to the stimulus.

- Aspects of shaping life patterns and attitudes focus on living the values of life so that they become their own guidelines for life.

- The participation aspect is focused on being active in an activity

- Organizational aspects focus on how to form a system as a reference or control of life.

c. Psychomotoric Domain, consisting of aspects of guided movements, accustomed movements, creativity. Each of these aspects has a different definition.

- The guided movement aspect is the ability to imitate (practice the examples of movements that are given).

- The aspect of accustomed movement is the ability to repeat movements smoothly.

- The aspect of creativity is the ability to create a new movement on one's own initiative.



### 2.3. Psychoeducation on Gluten Free Casein Free Diet

Extension is a model of non-formal education by providing education to the community or other people outside the scope of the school. Non-formal education aims as an organized and sustainable effort to provide guidance for individuals, groups, or communities to achieve social welfare (Kamil, 2009).

PENDEKAR AUTIS is an acronym for Gluten-Casein Free Diet Counseling with the form of counseling for small groups (less than 20 participants) which contains lectures, brainstorming, and instructions on how to process simple ingredients. This activity was attended by parents of ASD children with presenters consisting of child psychologists, biomedical experts, and culinary specialists. Covid-19 requires us to do physical distancing so that all activities from PENDEKAR AUTIS are carried out using the online method.

Extension using online methods has been carried out by González-Ortega, et al. (2016) in the research title Online Psycho-Education to The Treatment of Bipolar Disorder: Protocol of A Randomized Controlled Trial. The results of the research by González-Ortega, et al. (2016) showed that 9 sessions of online psychoeducation made it easier for bipolar patients to consult with psychologists, psychiatrists and doctors. In addition, online psychoeducation is more effective at raising awareness than general psychoeducation. Online psychoeducation by González-Ortega et al. Consists of learning sessions (with an assessment questionnaire) and psychotherapy exercises using an interface of their choice (eg using a PC, tablet, or smartphone).

## 3. Method

The approach used in this research is a quantitative research with an experimental research design. The variables in this study consisted of the independent variable (independent) and the dependent variable (dependent). The independent variable of this study was counseling on the gluten free casein free diet, while the dependent variable of this study was the understanding of parents towards healthy eating patterns. The research participants in this study were parents of children with ASD in Malang, with an unknown total population. The total sample used in this study were 3 parents who had little understanding of healthy eating patterns and were willing to take part in online psychoeducation. Data collection was carried out using data collection instruments in the form of a questionnaire on parental understanding of healthy diet and treatment



instruments in the form of psychoeducation extension modules. The analysis technique used was the *Mann Whitney U-Test*.

## 4. Result and Discussion

### 4.1. Results

Participants in this study consisted of 3 parents, specifically the female parent and whom high school was their recent educational background. The experiment was carried out on 1-22 July 2020 using *Google form, Google Meet, and Whatsapp* applications. The research was carried out 5 times, in July 2020, the following is an explanation of the implementation of the experiment that the researcher has conducted.

The results of the *pre-test* in understanding the healthy diet for Children with ASD were categorized as very high, high, moderate, and low. Subjects that fall into moderate to very low category will get treatment in the form of extension sessions and giving media modules as a collection of material from each session to be carried out by the subject.

The *pre-test* score of subject P for the cognitive aspect is 30 (very low) out of a total score of 100. The affective aspect of subject P is not as good with a score of 59 out of 70, while the psychomotor aspect of subject P is 9 out of 30, which indicates that subject P lack *skill* in in creating a healthy food menu.

The *pre-test* value of subject S for the cognitive aspect is 30 (very low) out of a total score of 100. The affective aspect of subject S is not as good with a score of 51 out of 70, while the psychomotor aspect of subject S is 6 out of 30, which indicates that subject S lack *skill* in creating a healthy food menu.

The *Pre-test* value of subject S for the cogniive aspect is 30 (very low) out of a total score of 100. The affective aspect of subject S is not as good with a score of 51 out of 70, while the psychomotor aspect of subject S is 6 out of 30, which indicates that subject S lack *skill* in creating a healthy food menu.

The *Pre-test* value of subject ST for the cognitive aspect is 55 (enough) out of a total score of 100. The affective aspect of subject ST is good enough with a score of 57 out of 70, while the psychomotor aspect of subject ST is 13 out of 30, which indicates that subject ST lack *skill* in creating a healthy food menu.

From the result of the pre-test conducted by the researcher, it was found that 3 subjects fit into the criteria desired by the researcher. The criteria meant here is how

the subject were in Malang, and has a poor understanding of a healthy diet of Children with ASD, and those who are willing to take part in an online psychoeducation.

After all the PENDEKAR AUTIS sessions were completed, the researcher conducted a post-test to see the result during the treatment using google form. Post-test question link is given to three of the subjects at the same time. The post-test is conducted without any instruction beforehand, so it was purely from the subject's prior knowledge. As a reward, the researcher offered cognitive aid for children.

The description of the result obtained by the researcher from the post-test for each subject is as follows:

#### 1. Subject P

The cognitive score of subject P has increased from a score of 30 to 85. This shows that the understanding of subject P has improved after the online psychoeducation. The results of the affective aspect on subject P also increased but slightly, from the score of 59 to 62. Meanwhile, in the psychomotor aspect, subject P has also increased slightly, from 9 to 11. However, in the control table, subject P did not report back the result of how a healthy diet affected the children after 14 days of the psychoeducational counseling.

#### 2. Subject S

The cognitive score of subject S increased from 30 to 75. Subject S increased after online psychoeducation. The results of the affective aspect on subject S increased slightly, from the score of 51 to 60. Meanwhile, in the psychomotor aspect, subject S had a slight increase too, from 6 to 19. Though, on the control table, subject S only reported the result for 3 days after 14 days of the psychoeducational counseling.

#### 3. Subject ST

The cognitive score of subject ST increased from 55 to 100. The score of this subject increased after the online psychoeducation. The result of the affective aspect of ST experienced a drastic increase from the score of 57 to 67. Whereas in the psychomotor aspect, the ST subject also increased from 13 to 23. In addition, the ST subject in the control table only reported 6 days after 14 days of psychoeducational counseling.

Based on the result of *Mann Whitney test*, it is shown that the significance value is  $0,046 < 0,05$  with the score of -1,993, which means that there is a significant difference between the *Pre-test* dan *Post-test* in the subject group. These differences impacted the parents' understanding of the GCFC diet of Children with ASD.

## 4.2. Discussion

Community service carried out by Gusti and colleagues at UM Special Schools Laboratory, (Gusti, et al, 2019) shows that psychoeducation can improve parents' understanding of Children with ASD by giving them material and practice in creating a simple yet healthy food menus for their children. A research by Puteri, et al. (2018) on children with ASD in special schools in Semarang, shows that children's diets contain high amounts of nutrients that are combined from carbohydrates, protein, and high calcium for the physiological needs of children's growth and development. This study proves that knowledge, attitude and consistent behavior of parents in implementing a healthy diet for their children have an effect on the condition of children with autism.

Moreover, Patra, et al. (2015) revealed that psychoeducation is an intervention that can be given to parents to figure out how consistent they are in implementing diet and how they deal with tantrums. Prior to the event which involved psychoeducation, Patra tested the parents to figure how much they knew. Then, at the end of the session, they were tested again to see how effective psychoeducation were to them.

PENDEKAR AUTIS is psychoeducation with the methods that aims to measure how PENDEKAR AUTIS effects the understanding of parents and how it influence the healthy diet of Children with ASD. In its implementation, parents are given material, modules and videos which makes it easier for parents to follow the psychoeducation. In the modules that has been provided, parents can find not only the materials but also examples of healthy food menus that they can re-create at home. The control table is also included in the module, so that they can figure out the consistency.

During the implementation of PENDEKAR AUTIS, parents also have to supervise children who are playing, even if there is one parent. For example, subject P, was not able to participate in ENDEKAR AUTIS synchronously due to limited time. However, subject P tried to catch up by watching the recorded material and activity modules for each session from PENDEKAR AUTIS which was sent using the link by the executor. Subject S tuned in in the first session only and followed the other sessions asynchronously. Meanwhile, the ST subject followed PENDEKAR AUTIS according to the rundown.

In the implementation of PENDEKAR AUTIS there were several obstacles that were encountered by the researchers (implementers/observers), resource persons, and participants (parents). The obstacle is the delay in the implementation of the session because the participants still have activities outside of the psychoeducation such as accompanying children to do chores at home due to the implementation of *Learning From Home* (LFH), assignments from the office, and network disruptions.

PENDEKAR AUTIS also has an interesting module that parents can have and can be printed by parents themselves to make it easier to use. In addition to the modules, the material from each session was delivered by psychologists, nutritionists and culinary specialists to ensure the professionalism of each resource. Parents are also interested in joining because of the competent speakers in their fields. Implementation that is carried out online makes it easy for parents to follow PENDEKAR AUTIS so that parents can still supervise children studying at home while participating in material sessions and other series of PENDEKAR AUTIS sessions.

The implementation of PENDEKAR AUTIS shows that there is a noteworthy influence between GFCF diet education on parents' understanding of the healthy diet of Children with ASD. This is based on the results of the implementation of PENDEKAR AUTIS which shows growth in every aspect of parental understanding, namely cognitive aspects, affective aspects and psychomotor aspects. Therefore, PENDEKAR AUTIS has succeeded in solving the problem of implementing the GFCF diet for children and parents' understanding of healthy eating patterns.

## 5. Conclusions

Based on the results of the analysis and discussion, it can be concluded that: (1) PENDER AUTIS is a concept of GFCF diet education for parents of children with autism. This psychoeducation was carried out online with 5 treatment sessions. The speakers included psychologists, nutritionists, and culinary specialists. Giving modules and video presentation of the material given to participants so that participants can still re-read the material in the PENDEKAR AUTIS module and still be able to make healthy food menus with the help of videos of making healthy food menus for children, 2) After giving AUTISMEDEKAR to parents, the results what is obtained is a growth in the aspects of parental understanding, namely increased cognitive, affective and psychomotor. There is an increase in the pre-test and post-test scores of each aspect from very low to high, and 3) Counseling on the GFCF PENDEKAR AUTIS diet which is carried out with 5 treatment sessions has an effect on increasing parental understanding regarding the healthy diet of Children with ASD. based on the results of the *Mann Whitney test* which was tested using SPSS.

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