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The impact of psychoeducation, nutrition, and dental health management on parental knowledge, attitudes, and behaviours in caring for autistic children

Dampak psikoedukasi, nutrisi, dan manajemen kesehatan gigi terhadap pengetahuan, sikap, dan perilaku orang tua dalam merawat anak autis

Arnela Nur[1*], Sisca Mardelita[2], Intan Liana[3], Cut Ratna Keumala[4], Linda Suryani[5], Nunung Sri Mulyani[6]

[1] Departement of Dental Health, Aceh Ministry of health Polytechnic. E-mail: arnelanur24@gmail.com.
[2] Departement of Dental Health, Aceh Ministry of health Polytechnic. E-mail: sisca.mardelita@poltekkesaceh.ac.id
[3] Departement of Dental Health, Aceh Ministry of health Polytechnic. E-mail: intan_liana62@yahoo.com
[4] Departement of Dental Health, Aceh Ministry of health Polytechnic. E-mail: cutratnakeumala@gmail.com
[5] Departement of Dental Health, Aceh Ministry of health Polytechnic. E-mail: linda.suryani@poltekkesaceh.ac.id
[6] Departement of Nutrition, Aceh Ministry of health Polytechnic. E-mail: nunungsri.mulyani@poltekkesaceh.ac.id

***Correspondence Author:**
Dental Health Department, Aceh Ministry of Health Polytechnic, Integrated Campus, Jalan Soekarno Hatta, Lampeunerut, Aceh Besar.
E-mail: arnelanur24@gmail.com

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Abstract

The number of children with autism in Indonesia continues to increase annually. Children with autism often eat sweet and sticky foods, have irregular brushing habits, and rarely receive parental guidance for maintaining oral health. This is certainly a trigger for stunting in children. Preventive efforts include providing psychoeducation to parents or caregivers. This study aimed to improve the knowledge, attitudes, and behavior of parents or caregivers of children with autism. The research design was a quasi-experiment with pre-test and post-test non-equivalent group designs. This study was conducted at the School for Students with Special Needs (SLB) and SLB in Pembina Aceh Province, involving 25 parents/caregivers of children with autism (intervention group) and 17 parents/caregivers in the control group. Data were collected through interviews, using questionnaires. Data were analyzed using the Mann-Whitney and Wilcoxon tests, The results showed that nutritional management psychoeducation had an effect on knowledge, attitudes, and behavior ($p<0,05$), whereas the control group showed no difference in behavior ($p>0,05$). Furthermore, nutritional management psychoeducation was effective in improving parents' knowledge, attitude, and behavior ($p=0,001$) compared to the control group. In conclusion, nutritional management psychoeducation significantly improved parents' knowledge, attitudes, and behaviors. This intervention proved to be more effective than that in the control group.

Keywords: Autism, dental health, nutrition management, psychoeducation

Abstrak

Jumlah anak autis di Indonesia terus meningkat setiap tahun. Anak autis sering mengonsumsi makanan manis dan lengket, memiliki kebiasaan menyikat gigi tidak teratur, serta jarang mendapatkan bimbingan orang tua dalam menjaga kesehatan gigi dan mulut. Hal tersebut tentunya pemicu masalah stunting pada anak-anak. Upaya preventif yang dapat dilakukan adalah memberikan psikoedukasi kepada orang tua atau pengasuh. Penelitian bertujuan untuk meningkatkan pengetahuan, sikap dan perilaku orang tua atau pengasuh dari anak autis. Desain penelitian adalah *Quasi eksperimen dengan pre-test dan post-test non-equivalent group design*. Penelitian ini dilaksanakan di SLB Negeri dan SLB Pembina Provinsi Aceh, melibatkan 25 orang tua/ pengasuh dari anak autis (kelompok intervensi), pada 17 orang tua/ pengasuh pada kelompok kontrol. Pengumpulan data melalui wawancara menggunakan kuesioner. Data dianalisis menggunakan uji Mann-Whitney dan Wilcoxon. Hasil, terdapat pengaruh psikoedukasi manajemen nutrisi terhadap pengetahuan, sikap dan perilaku ($p<0,05$), sebaliknya pada kelompok kontrol tidak menunjukkan perbedaan pada perilaku ($p>0,05$), Selanjutnya, psikoedukasi manajemen nutrisi efektif meningkatkan pengetahuan, sikap, dan perilaku orang tua ($p=0,001$),

dibandingkan kelompok kontrol. Kesimpulan, psikoedukasi manajemen nutrisi signifikan meningkatkan pengetahuan, sikap, dan perilaku orang tua. Intervensi ini terbukti efektif dibandingkan dengan kelompok kontrol.

Kata Kunci: Autism, kesehatan gigi, manajemen nutrisi, psikoedukasi

Introduction

The symptoms of autism, a developmental disease that manifests in people within the first three years of life, include trouble connecting and communicating, as well as stereotyped and repetitive behaviors (APA, 2019). The number of individuals with autism in Aceh is estimated to increase by 4-6% year, with a rate of increase of 25% over a ten-year-period (Pusdatin Kemendikbud, 2021).

According to Suhaib et al. (2019), children with special needs, including autism, have a greater demand for dental and oral healthcare than children in general. According to a Chinese study of 144 children with autism, all children with autism had gingivitis and the majority had poor dental hygiene. This disorder is caused by the fact that children with autism frequently eat sticky and sweet foods, have erratic brushing habits, and are less able to follow the oral hygiene and dental care instructions from their parents, caregivers, and dental professionals. This is because of their restrictions, such as their inability to clean their oral cavity, which increases the possibility of surrounding teeth and soft tissues (Qiao et al., 2020).

According to Naidoo & Singh's (2018) study, the majority of children with autism in South Africa have high caries, poor dental hygiene, and gingivitis. This study included 149 children with autism. According to the findings of a study conducted by Rachmawati & Ermawati (2019) on 35 autistic children at the Autism Special School Branjangan Jember Regency of Indonesia, there was a 70% prevalence of periodontal disease and caries and a moderate level of oral hygiene (57,1%). This disorder is caused by the frequent consumption of sticky and sugary foods by young individuals with autism. Furthermore, children with autism have been observed to consume food between melas and consume more sugar each day-more than two teaspoons (Ranjan & Nasser, 2015; Doreswamy et al., 2020). Children with autism exhibit erratic brushing patterns and are less likely to understand oral health professionals, parents, or caregivers and advice on maintaining good oral and dental hygiene. This is because of their inherent limitations, including their inability to properly clean their mouth cavity, which raises the possibility of harm to their teeth and the delicate tissues surrounding them (Abdallah et al., 2018; Naidoo & Singh, 2018).

There is still very little research on nutritional management that focuses on children with autism and is designed to prevent dental and oral problems. In addition, there is a lack of a multidisciplinary approach combining nutrition, dentistry, and behavioral therapy as well as limited data on different age groups and severity levels of autism. The lack of special adaptations for the sensory needs of children with autism in dental care and nutrition can result in dental health problems; therefore, parents or caregivers need to be able to implement nutritional management in autistic children.

Parental or caregiver ignorance of appropriate eating habits in children with autism is an issue in the nutritional management of the dental and oral health of children with autism. Snacks with flour, sugar, and sweets are still given to children by parents or other caregivers, as a token of gratitude. This demonstrates that parents or other caregivers do not feed their children anything special; instead, the food they consume is served on other family menus (Nur et al., 2022).

Research on the nutritional management of the dental and oral health of children with autism is important because children with autism often face challenges in terms of eating habits, food sensitivity, and behaviors related to dental and oral hygiene. Poor nutrition and selective eating habits can increase the risk of dental health problems such as caries and gum disease. In addition, difficulties in maintaining dental hygiene due to sensory or behavioral barriers can increase the risk of oral health problems. This research supports the development of nutritional management and oral healthcare strategies specifically for children with autism that can reduce dental health problems and improve their quality of life (Fraguas et al., 2019).

The study results by Nur et al. (2022) 11 on primary caregivers in Jakarta Indonesia revealed that the best dietary practices for children with autism are still unclear. They still treat their children as snacks or sugar, flour, and sweets as tokens of gratitude. This suggests that caregivers and parents do not feed their children anything special; instead, the food they consume is served through other family menus. Snacking at school involves primary caregivers providing their children with sugary and sticky treats. Children with autism require nutritional monitoring by their primary caregivers. They believed that an appropriate diet could increase the controlled behavior and dental health of children with autism.

Children with autism typically eat the same food as other children, who also need to follow nutritional guidelines and pay attention to certain food selection factors. Children diagnosed with autism are typically fed gluten- and casein-free diets. In addition to being crucial from a behavioral perspective, regulating the eating habits of children with autism is crucial for their dental health (Essa, 2020).

To prevent dental cavities and behavioral difficulties in children with autism, parents and other caregivers lack knowledge of the appropriate eating habits. This study aimed to determine the impact of psychoeducation, nutrition, and dental health management on parents' knowledge, attitudes, and behaviors in caring for children with autism. We hypothesized that psychoeducation, nutrition, and dental health management influence parental knowledge, attitudes, and behaviors in caring for children with autism.

Methods

This study used a quasi-experimental design with a non-equivalent group design for pre-and post-tests. Two groups were used in this study: treatment and control. The psychoeducation module on the nutritional management of dental and oral health in children with autism will be used to teach treatment and control groups.

The participants in this study were parents or caregivers who met the inclusion criteria, had children with autism aged 6-15, were classified as having moderate autism, provided daily care for the children, and were willing to engage in intervention activities. The study was conducted at Negeri and Pembina schools for students with special needs in Aceh, Indonesia. The study involved twenty-five primary caregivers in the treatment group and 17 in the control group participated in these study. According to Sugiono (2013), the sample sizes for basic experimental research with experimental and control groups range from 10 to 20 individuals. Purposive sampling was used in this study. All participants received written information about the study's purpose and voluntarily provided informed consent to participate. The study was conducted between October 2 and November 2, 2023. This study was approved by the Research Ethics Commission of Sari Mulia University (098/KEP-UNISM/IX/2023) on September 22, 2023.

Parents and caregivers were interviewed in person for the pre-and post-tests. Information from the nutrition management psychoeducation module was used to generate the questionnaire. Validity and reliability tests were performed on the knowledge, attitudes, and behaviors of the questionnaire. The questionnaire was developed from research by Nur, A (2023) entitled the influence of dental and oral health psychoeducation on the knowledge, attitudes and behavior of parents as well as the dental health status of autistic children.

Table 1. Normality test using the Shapiro-wilk test

Variable	Intervention		Control	
	p		p	
Knowledge				
Pre-test	0,139	N	0,821	N
Post-test	0,001	AN	0,034	AN
Attitude				
Pre-test	0,015	AN	0,628	N
Post-test	0,642	N	0,653	N
Behaviour				
Pre-test	0,000	AN	0,096	N
Post-test	0,005	AN	0,182	N

N=Normal AN= Abnormal

The intervention was administered to the treatment and control groups thrice per row. A post-test was conducted three weeks after the intervention and its conclusion. The data were then processed using editing, coding, scoring, entry, and tabulation steps.

Univariate analysis was used to describe the variables of the respondent characteristics. The Shapiro-Wilk test (Table 1) was used to verify that the data were normal before choosing the bivariate analysis test. Not all data had a normal distribution. At a significance level of 95 %, the data were analyzed using the Mann-Whitney U test for the difference in mean between the two groups and the Wilcoxon test for the difference in mean before and after the intervention.

The data in the control group were normally distributed, except for post-test knowledge data. However, the results of the normality test of the pre-and post-test data revealed that the data in the intervention group were normally distributed (p > 0,05) in pre-test knowledge and post-test attitudes.

Result and Discussion

The results of this study are shown in the following table:

Table 2. Respondent characteristics of the autistic child and parents or caregivers

Variable	Intervention		Control	
	n	%	n	%
Age of child				
9-12 years	19	76	8	47
13-16 years	6	24	9	53
Age of Parents				
29-34 years	5	20	4	23
35-40 years	8	32	12	71
>40 years	12	48	1	6
Education				
Elementary school	0	0	0	0
First high school	2	8	2	12
Upper high school	16	64	14	82
Bachelor	7	28	1	6
Work				
State civil apparatus	4	16	1	6
Private	9	36	4	23
Housewife	12	48	12	71

Table 2 illustrates the characteristics of the respondents based on the age and demographic features of children with autism and their parents. The majority of children with autism were aged 9–12 years (76%), whereas most parents were aged 41 years or older (48%). Regarding parental occupation, 48% were housewives or were unemployed. Additionally, the predominant educational level among parents was high school, which was reported by 64% of the respondents.

Table 3. Differences between pre-test and post-test intervention groups with control

Variable	Pretest	Posttest	p
	Mean ± SD	Mean ± SD	
Knowledge			
Intervention	10,3 ± 2,84	15,5 ± 1,41	0,001[a]
control	11,3 ± 1,90	9,76 ± 1,56	0,001[a]
Attitude			
Intervention	51,2 ± 13,12	67,9 ± 5,77	0,001[a]
control	58,5 ± 2,74	67,9 ± 5,77	0,001[b]
Behavior			
Intervention	13,7 ± 4,76	17,0 ± 1,11	0,001[a]
control	10,1 ± 2,24	10,4 ± 1,54	0,579[b]

[a]Wilcoxon Test. [b] Paired t-test

Table 3 demonstrates that, with a p-value <0,05, there were variations in the average knowledge, attitudes, and behavior of parents or caregivers in the intervention group before and after the intervention. The average knowledge and attitude pre- and post-test scores in the control group differed (p-value <0,05. The average behavioral scores before and after the test were not significantly different (p<0,05). Outcomes: The intervention group outperformed the control group in terms of the scores.

Table 4. The effect of education on parents' knowledge, attitudes, and behavior

Variable	Pretest		Posttest	
	Mean Rank	p	Mean Rank	p
Knowledge				
Intervention	20,18	0,392	30,00	0,001 [a]
Control	23,44		9,00	
Attitude				
Intervention	18,14	0,031 [a]	28,10	0,001 [a]
Control	26,44		11,79	
Behavior				
Intervention	26,68	0,001 [a]	30,00	0,001 [a]
Control	13,88		9,00	

Table 4 indicates a statistically significant improvement in knowledge, attitudes, and behavior following psychoeducation on nutrition

management in children with autism ($p < 0,05$). The intervention group showed a greater increase in these areas than did the control group. The study's findings indicate that after receiving psychoeducation, parents' understanding of managed nutrition increased. The influence of education using oral health nutrition management materials that met their needs was the cause of the increase in knowledge in the intervention group. If what is offered makes sense to the individual, the information can be understood. Children's dental health can be improved if parents are knowledgeable about dietary management. Furthermore, the implementation of a healthy diet can regulate the behavior of children with autism (Duker, et al*.* 2018).

Necessity of diet management in children with autism. According to parents (Duker et al., 2017), controlling an appropriate diet can help autistic children have better oral health and more regulated conduct. The primary caregivers believed that to be consistent in their approach and avoid confusing the children, they must offer advice or direction on electing appropriate foods for children with autism (Nur et al., 2022). Parents and other caregivers play a critical role in helping children with autism to maintain their dental and oral health. Psychoeducation plays a crucial role in providing parents or other caregivers with information and services regarding dental care for children with autism and motivating them to take an active and serious approach to providing dental care to their children (Bai et al., 2015).

The findings showed that parents' and caregivers' attitudes differed significantly, with the intervention group showing a greater increase. Alhumaid et al. (2020) children with autism can benefit from opportunities to obtain good dental and oral health status if their parents or other caregivers have favorable attitudes toward preserving their children's oral and dental health.

Based on the results of this research, Sarnat et al. (2016) parents or caregivers had strong views or wishes to control their children's diets, but certain obstacle, such as financial constraints, prevented these aspiration from being realized in the case of 47 autistic children. The state of the economy affects how well children with autism meet. The greater the parents' income, the better the facilities offered to maintain dental health and prevent oral and dental health issues.

The findings showed notable variations in the behaviors of parents or other caregivers, with the intervention group showing a larger increase. This follows the results of research by Fan et al. (2018) parents or caregivers who participated in psychoeducational intervention programs and demonstrated and improve in their dietary habits for maintaining dental and oral health. To improve their children's oral health and behavior, parents or other caregivers can teach their children dietary management. One of the best ways to achieve behavioral changes in maintaining dental and oral health, including managing diet in children with autism, is through psychoeducational intervention. Psychoeducational interventions focus on the needs and features of children with autism by utilizing a variety of techniques and educational approaches to enhance their quality of life (Orellana et al., 2019).

Dietary patterns should be applied by parents or caregivers to their children to manage their behavior and prevent dental and oral health issues. Education on oral hygiene maintenance in children with autism is necessary for parents, caregivers, and educators. It is essential to maintain dental cleanliness, eat a healthy diet, and see the dentist on a regular basis to achieve optimal dental health (Kotha et al., 2018). According a study Suarez (2018) on 54 parents or caregivers who also had children with autism, a substantially higher percentage of milk and dairy products, and fairly high consumption of wheat, potatoes, or snacks. There is a significant risk of dental and oral health issues that are common in children with autism. Children with autism typically eat the same foods as other children who also need to follow nutritional guidelines and pay attention to certain food selection factors. Children with autism are typically prescribed gluten- and casein-free diets (Essa, 2020).

Vegetables, nuts, and seeds are among the foods high in calcium and magnesium that help soothe and enhance the behavior and focus of children with autism. Owing to their extreme sensitivity to bitter flavors, children with autism may reject some foods, which may limit their vegetable intake. In contrast, individuals with autism prefer fruit. Children have a delicious flavor and mouthfeel. The study's finding

indicate that in comparison to children who seldom eat vegetables, children with autism who eat vegetables more frequently have a lower incidence of dental caries (Essa, 2020).

The use of casein-free or gluten-free diets is affected by both internal and environmental variables. External variables that will help the implementation of nutrition consistently come from the surrounding environment, including the individuals around them, while internal factors come from parents and children with autism (Baspinar & Yardimci, 2020).

Since mothers organize their children's meals and are closest to them, it is necessary for parents or other caretakers to supervise their nutrition. Running a case-free, gluten-free diet for children requires commitment because the diet must be followed everywhere they eat, including at home and school. Moreover, there are other variables that may affect how parents behave when implementing a casein-free, gluten-free diet for their children, including the behavior of children with autism, which could be a challenge (Moorthy et al., 2022).

The environment has a significant impact on how well autistic youngsters follow casein- and gluten-free diets. All family members who require modifications in the diet will be affected by the participation of individuals at home during their execution. Furthermore, an external element of addiction is the accessibility of gluten-and-casein-containing foods, which are still commonly available in the market and in the surrounding environment (Karhu et al., 2020).

The primary individuals that can affect a child's nutrition, eating habits, and weight are their parents and caregivers. The most powerful element linked to promoting good eating habits at home is the accessibility and availability of nutrient-rich foods. By encouraging children to routinely consume fruits and vegetables, offer them meals, and share meals with them, parents and other caregivers can serve as role models or examples for their children. If this is done on a regular basis, consumption of a nutritional diet on a daily basis will benefit the oral and dental health of children with autism (Nur et al., 2022).

However, parents or other adults who care for their children may also support their consumption of sugar-containing meals and beverages, such as sugary drinks and snacks, which may increase the risk of dental caries. To combat this, parents and other caregivers require direction regarding food selection. Wholesome foods are important because they can influence development and growth while lowering the incidence of dental cavities (Karhu et al., 2020).

A child's development is greatly aided by the role of parents or other caregivers, especially when selecting the appropriate food based on the child's needs. Adequate food selection in accordance with prescribed diet is necessary to prevent malnutrition in children with autism. Therefore, it is believed that, via appropriate diets, children with autism problems will receive sufficient nutrition to meet their demands and adhere to therapy and school (Essa, 2020).

Children should be able to learn from their parents or other caregivers in order to avoid eating between meals. Most children frequently eat fast-food restaurants and consume sugar-rich snacks between meals. All individuals, regardless of age, should restrict their consumption of food and liquids between meals, and when they want snacks, they should choose healthy options (Abdallah et al., 2018). If children regularly consume sugary foods and fizzy beverages, parents or other caregivers should discuss their negative effects on dental health. Teaching autistic children good eating habits can enhance their dental health and lead to behavioral changes (Gonçalves et al., 2016).

This study has limitations, namely that it does not match the respondents according to their backgrounds. The educational and socioeconomic levels and understanding of parents vary greatly

Conclusion

Parental knowledge, attitudes, and behaviors are influenced by nutrition management education for children with autism. The intervention group showed a greater degree of improvement than did the control group.

Parents and other caregivers must receive preschool education on nutrition management to prevent dental and oral health issues in their children. Future research should examine how nutrition management psychoeducation affects the oral health of parents or caregivers of children with autism.

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