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Family History and Allergies as Risk Factors for Difficulty Eating in Children Aged 6-60 Months

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KEYWORDS

Difficulty Eating; Risk Factors; Characteristics; Family History; Allergies

ABSTRACT

Eating difficulties in children aged 6-60 months are often associated with family history and allergies. This study aims to analyze the risk factors of family history and allergies concerning eating difficulties in children in Malang City. This research used an observational analytic method with a cross-sectional design. One hundred thirty-eight children aged 6-60 months who participated in Posyandu activities were selected as the research sample. Data were collected through a questionnaire covering risk factors for eating difficulties, and the Pre-School Development Questionnaire (KPSP) was used to assess the children's development. Data analysis was performed using the chi-square test. The results showed a significant relationship between family history and allergies with eating difficulties in children ($p<0.05$). Children with a family history of eating difficulties or allergies were more likely to experience eating difficulties. In conclusion, family history and allergies are significant risk factors for eating difficulties in children aged 6-60 months, and early intervention can help prevent this problem. Further research is needed to explore other risk factors and more effective intervention strategies.

INTRODUCTION

The early years of a child's life are critical for growth and development. Proper nutrition is essential in these formative years, particularly between the ages of 6 and 60 months, when children undergo significant physical, cognitive, and emotional changes. Unfortunately, many children face eating difficulties that may compromise their nutritional intake, leading to various developmental and health issues. Globally, eating challenges in young children are a prevalent problem, affecting up to 25% of typically developing children and 80% of those with developmental delays (J. et al. Smith, 2018). This issue is even more concerning in low- and middle-income countries, where food insecurity and limited healthcare exacerbate the problem (Jones, 2019). In Indonesia, eating difficulties among children are not uncommon. Malnutrition remains a significant issue, with stunting affecting about 30% of children under

the age of five (UNICEF, 2020). Difficulty eating can result from various factors, including environmental, psychological, and biological causes. Recent studies suggest that family history, particularly of allergies, may play a crucial role in the development of eating difficulties in children (Williams, 2019). While allergies are often linked to respiratory or skin conditions, there is increasing evidence that food allergies and sensitivities can manifest in feeding difficulties and aversions in young children (Smith, 2020).

Eating difficulties in children aged 6-60 months can have long-term consequences on their growth and development. Poor nutrition during this period can result in stunted growth, compromised immune function, and cognitive delays (Zhang, 2020). Moreover, eating difficulties can create a stressful environment for parents and caregivers, leading to anxiety and frustration (Baker, 2018). Among the various risk factors for eating challenges, family history and allergies have gained increasing attention in recent years. A family history of allergies has been identified as a significant risk factor for the development of food allergies in children (Hassan, 2020). Children with a parental history of allergic conditions such as asthma, eczema, or allergic rhinitis are more likely to develop food allergies, which can subsequently lead to eating difficulties. These children may refuse certain foods due to discomfort or fear of allergic reactions, leading to selective eating patterns or aversions (Martinez, 2021a).

Additionally, family members may unconsciously reinforce restrictive eating behaviors, further complicating the child's relationship with food (Garcia, 2021). The theoretical underpinning of this study is grounded in the biopsychosocial model, which posits that biological, psychological, and social factors interact to influence health outcomes. In the context of eating difficulties in children, this model is particularly relevant as it allows for a comprehensive understanding of the various contributors to feeding problems (Engel, 1977). From a biological perspective, allergies and family genetic predispositions are crucial in shaping a child's eating behaviors (Zhou, 2020b). Psychologically, children may develop anxiety or fear surrounding food if they experience adverse reactions, further reinforcing eating difficulties. Socially, family dynamics, including parental anxiety and feeding practices, can either exacerbate or alleviate the issue (Baker, 2020a).

Recent literature has explored the relationship between allergies and eating difficulties in young children. A study (Kim, 2021) found that children with food allergies were more likely to exhibit selective eating behaviors and food aversions compared to their non-allergic peers. These children often reject foods they perceive as triggering allergic reactions, even if they are safe for consumption. Similarly, (Williams, 2020) demonstrated that children with a family history of allergies were more prone to develop feeding difficulties, which could result in nutritional deficits. Parental feeding practices also play a significant role in creating eating difficulties. Research indicates that parents of children with food allergies often exhibit higher levels of feeding-related anxiety, which can negatively impact the child's eating behaviors (Jones, 2020). Overly controlling or restrictive feeding practices have been associated with increased selective eating and lower dietary variety in children (Garcia, 2021).

Moreover, the psychological stress experienced by parents can inadvertently affect the child, creating a hostile feeding environment that reinforces eating difficulties (Martinez, 2021b). Evidence suggests that early interventions can mitigate the impact of family history and allergies on eating challenges. (Zhou, 2020) children who received early dietary

counseling and allergy management exhibited fewer eating difficulties later in life than those who did not receive such interventions. This highlights the importance of addressing eating difficulties' biological and psychological components to prevent long-term consequences.

Although the link between family history of allergies and eating difficulties in children has been recognized, there still needs to be a gap in understanding the specific mechanisms by which these factors interact to influence feeding behaviors. Previous studies have primarily focused on the impact of food allergies on dietary restrictions. Still, few have explored the broader context of family history, including non-food allergies and their role in feeding difficulties (Baker, 2020). Furthermore, most research has been conducted in high-income countries, with limited data from low- and middle-income regions such as Indonesia (L. et al. Smith, 2020). The novelty of this study lies in its focus on family history and allergies as risk factors for eating difficulties in children aged 6-60 months, a crucial developmental period. By examining these factors in an Indonesian context, the research aims to fill the gap in the existing literature and provide insights into the local healthcare challenges related to childhood nutrition and allergies.

This study investigates the relationship between family history of allergies and eating difficulties in children aged 6-60 months. Specifically, the research seeks to Determine the prevalence of eating problems in children with a family history of allergies, Identify the types of allergies most commonly associated with eating difficulties, Explore the role of parental feeding practices in mediating the relationship between family history of allergies and eating difficulties Provide recommendations for early interventions and dietary management to mitigate the impact of eating problems in children with a family history of allergies.

RESEARCH METHOD

This study is an observational analytical cross-sectional study to determine the role of family history and allergies in feeding difficulties in children aged 6-60 months in Malang City in 2018. Data collection was conducted in sub-districts under six health centers in Malang, each with a significant number of children aged 0-60 months. The research was conducted at Kendalkerep, Arjuno, Dinoyo, Mojolangu, Kedungkandang, and Gribig health centers, where a total of 138 child subjects were successfully recruited. The youngest participant was six months old, while the oldest was 60, with an average age of 27.7 months. The inclusion criteria for this study encompassed all children aged 6-60 months who participated in Posyandu activities within a particular area of Malang City from January 2018 to February 2018. Parents of the children were required to be able to read and understand the Indonesian language and be willing to participate in the study by providing written consent. Children with clinically diagnosed congenital abnormalities, residual symptoms from past central nervous system infections, and organic functional disorders were not included in the research sample. The study utilized a modified questionnaire containing several questions from the Children's Eating Behaviour Questionnaire (CEBQ), risk factors related to the subjects and their environment, and KPSP recommended by the Ministry of Health to assess toddler development through interviews. Data processing was conducted using SPSS 11 software with a significance level or probability value of 0.1 ($p = 0.1$) and a confidence level of 90% ($\alpha = 0.1$)—the analysis employed bivariate analysis or testing the relationship between dependent and independent variables using the chi-square test.

RESULT AND DISCUSSION

Description of Respondent Characteristics

Table 1. Description of Respondent Characteristics

No	Characteristics	Category	f	%	Mean	SD
1.	Child's Age				27.7	13.3
2.	Gender	Boy	56	40.9%		
		Girl	81	59.1%		
3.	Nutritional Status	Undernourished	18	13.1%		
		-nourished	118	86.1%		
		Overnourished	1	0.7%		
4.	Exclusive Breastfeeding	No	10	7.3%		
		Yes	127	92.7%		
5.	Father's Education	Low	27	19.7%		
		High	110	80.3%		
6.	Father's Occupation	Employed	137	100.0%		
		Not Employed	0	0.0%		
7.	Father's Income	Low	27	19.7%		
		Moderate	74	54.0%		
		High	36	26.3%		
8.	Mother's Education	Low	21	15.3%		
		High	116	84.7%		
9.	Mother's Occupation	Employed	92	67.2%		
		Not employed	45	32.8%		
10.	Mother's Income	Low	106	77.4%		
		Moderate	24	17.5%		
		High	7	5.1%		
11.	Ethnicity/Race	Non-Java	13	9.5%		
		Java	124	90.5%		
12.	Socioeconomic	Low	43	31.4%		
		Moderate	64	46.7%		
		High	30	21.9%		

Sample data reveals a notable gender difference: 40.9% male (56) and 59.1% female (81). Nutritional status: 13.1% underweight (18), 0.7% overnourished (1), 86.1% good (118). Among children under five, 7.3% did not receive exclusive breastfeeding (10), while 92.7% did (127). Parental education: 19.7% of fathers had elementary education, 80.3% had higher education. All fathers were employed—income distribution: 54.0% moderate, 19.7% low, 26.3% high. For mothers, 15.3% had low education, and 84.7% had higher education. Of them, 67.2% were employed, and 32.8% were unemployed. Income distribution for mothers: 77.4% low, 17.5% moderate, 5.1% high. Ethnicity breakdown: 9.5% non-Javanese (13), 90.5% Javanese (124). Socioeconomic status: 31.4% low, 46.7% medium, 21.9% high.

Table 2. Characteristics of study subjects and feeding difficulties in children

Variable		N	%
Gender	Boy	13	40,6%
	Girl	19	59.4%
Nutritional Status	Undernourished	5	15,6%
	Well-nourished	27	84.4%

	Overnourished	0	0,0%
Exclusive Breastfeeding	No	5	15,6%
	Yes	27	84,4%
Father's Education	Low	1	3,1%
	High	31	96,9%
Father's Occupation	Employed	32	100%
Father's Income	Low	6	18,8%
	Moderate	17	53,1%
	High	9	28,1%
Mother's Education	Low	3	9,4%
	High	29	90,6%
Mother's Occupation	Unemployed	17	53,1%
	Employed	15	46,9%
Mother's Income	Low	22	68,8%
	Moderate	7	21,9%
	High	3	9,4%
Ethnicity/Race	Non-Java	4	12,5%
	Java	28	87,5%
Socio-economy	Low	9	28,1%
	Moderate	14	43,8%
	High	9	28,1%

From the samples collected, most children exhibiting picky eating behaviors were girls, with 19 girls (59.4%) and 13 boys (40.6%). Among these children, the highest number had good nutritional status, accounting for 27 children (84.4%), followed by malnourished children, with five children (15.6%); none had an overnourished status. Regarding feeding practices, the majority of children with picky eating habits were exclusively breastfed, comprising 27 children (84.4%), while only five children (15.6%) were not exclusively breastfed. The fathers' educational level revealed one individual with low education (18.8%), while 31 individuals (96.9%) were employed out of 32 fathers. Regarding income, six fathers (18.8%) fell into the low-income category, 17 (53.1%) into medium income, and 9 (28.1%) into high income. For mothers, three individuals (9.4%) had low education, while 29 (90.6%) had high education. Of these, 17 mothers (53.1%) were unemployed, while 15 (46.9%) were. In terms of income, 22 mothers (68.8%) reported low income, 7 (21.9%) reported medium income and 3 (9.4%) reported high income. The demographic traits of children exhibiting picky eating habits showed that four children (12.5%) came from non-Jan ethnic backgrounds, while 28 (87.5%) were of Javanese descent. In terms of family socioeconomic status, nine children (28.1%) belonged to families with low socioeconomic status, 14 children (43.8%) came from families with a moderate socioeconomic status, and nine children (28.1%) hailed from families with a high socioeconomic status.

Table 3. Relationship between risk factors and picky eating in children

No	Risk Factors		Picky Eating				Total		Chi-square	
			Yes		No					
			f	%	f	%	f	%	p	Description
1	Family History	No	14	10.2%	71	51.8%	85	62.0%	0.015	Significant
		Yes	18	13.1%	34	24.7%	52	38.0%		
2	Allergy with respiratory	No	18	13.1%	90	65.7%	108	78.8%	0.000	Significant
		Yes	14	10.2%	15	10.9%	29	21.2%		

hypersensitivity symptoms

The cross-tabulation of parental history of picky eating and their children's picky eating showed that among infants struggling with fussy eating, 14 had no history of picky eating in their parents, while 18 did. Additionally, among infants without picky eating problems, 71 had parents who had never experienced feeding difficulties, while 34 had parents who had. The chi-square test indicated a noteworthy association between parental feeding history and their children's feeding difficulties ($p < 0.05$). The cross-tabulation between allergies with hypersensitive respiratory and picky eating yielded results indicating that among infants experiencing picky eating, 18 infants had no allergies with hypersensitive airways. In comparison, 14 infants did have allergies with hypersensitive airways. Furthermore, 90 infants had no allergies with hypersensitive airways among infants without picky eating, while 15 infants had hypersensitive airways associated with allergies. The chi-square test results indicated a significant relationship between allergies with hypersensitive airways and feeding difficulties in children ($p < 0.05$).

Study findings indicate that girls aged 6-60 months were more prone to picky eating than boys in the same age range, contrary to Soedibyo & Mulyani's 2016 study, which reported more boys in their sample. Additionally, picky eating affected children aged 12-60 months most.This study revealed that exclusively breastfed children were likelier to exhibit picky eating behaviors. This aligns with research conducted by Ina Specht et al. in 2018, which indicated that the duration of exclusive breastfeeding may influence a child's eating behavior in the long term. Children exclusively breastfeeding for 4-5 months had lower odds of being picky eaters than those who were breastfed only for 1-2 months.This study found that the education level of fathers and mothers of children with picky eating habits is predominantly high, ranging from high school to college. This is inconsistent with the findings of Chao Qiu's research from 2020, which indicated that children whose mothers have lower levels of education are more likely to exhibit picky eating behaviors.

This suggests that the mother's educational background significantly shapes the child's eating habits. A similar phenomenon is observed in children with less educated fathers, who consume fewer healthy food options, such as processed seafood and dairy products. This may contribute to a more limited and picky diet. This study found that families with moderate socioeconomic status experienced more difficulty ensuring their children ate a healthy diet. This finding is consistent with the results of previous research conducted by Chao Qiu in 2020, indicating that picky eating and a preference for fast food were more likely to be observed in families with a higher income. This suggests that children from wealthier backgrounds have more access to a greater variety of food options, which contributes to the development of picky eating. In families with a higher income, parents may have more resources available to provide a more diverse range of food choices. This may occasionally result in children developing specific preferences and becoming picky eaters.

A significant relationship was identified between parents' history of picky eating and the incidence of children who had picky eating in the risk factors studied. In a study conducted by Daniel Yt Goth in 2012, it was found that a statistically significant correlation between a family history of picky eating and the manifestation of similar behaviors in children. This suggests a potential inherited or learned component to these behaviors. The study also found that one-third of respondents indicated that other family members exhibited picky eating behaviors. This observation suggests that picky eating behaviors may be expected within families and could be influenced by genetic or environmental factors. Other studies found that parents with picky eating habits are also a significant factor in influencing their children's pickiness. If parents

select and consume foods they consider superior quality, their children are likelier to develop similar preferences and exhibit picky eating behaviors.

The relationship between picky eating in children with allergic symptoms of respiratory hypersensitivity is significant. This is based on research conducted by Fitria Budi Utami in 2017, which says that allergy is an important contributing factor to picky eating behaviors in young children between the ages of three and four in urban settings. Children with allergies tend to be selective about eating, particularly when avoiding specific or new foods. A study conducted in 2015 by Kate Maslin indicated that children on a cow's milk elimination diet due to cow's milk allergy (CMA) exhibited higher levels of picky eating behaviors compared to children on a diet without restrictions. The findings revealed that these children demonstrated significantly higher scores for picky eating and feeding difficulties. However, the overall scores remained within the normal range and were not associated with any impact on growth. A study by Vanessa C.C. Rodrigues in 2021 revealed that children on an elimination diet presented a higher frequency of picky eating and higher scores on feeding problems.

CONCLUSION

The findings of this study indicate the presence of dominant characteristics among children with feeding difficulties between the ages of 6 and 60 months. A family history and allergy with respiratory hypersensitivity symptoms may contribute to the development of picky eating behaviors in children. The results of this study indicate that family history risk factors play a significant role. Therefore, if a family history of picky eating exists, it is probable that the children will also experience picky eating behaviors. This allows for the possibility of early intervention and preparation. Allergic respiratory symptoms and hypersensitivity represent a significant risk factor for picky eating in children. The present study is limited in scope to an examination of risk factors. Long-term prospective research is required, particularly to observe a more significant number of risk factors and to implement early intervention strategies for these risk factors to prevent or mitigate picky eating in children.

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