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The Role of Family and School Environments in Early Childhood Vegetable Consumption Practices from a Sociocultural Perspective

Tri Handayani[1], Diah Wahyuningsih[2]

[1,2,3] Institut Studi Islam Muhammadiyah Pacitan, Pacitan, Indonesia.
Email: trihanda121282@gmail.com[1], diah18@isimupacitan.ac.id[2]

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ABSTRAK
Vegetable consumption in early childhood is a crucial factor influencing children's cognitive and physical development. For kindergarten-aged children (4–6 years), vegetable intake affects not only their physical health but also their mental well-being, intelligence, immune system, and social interactions with peers. Research by the Indonesian Ministry of Health indicates that 93.5% of children in Indonesia still have insufficient vegetable consumption. This percentage is based on a survey showing that consuming fewer than five servings of vegetables per day is categorized as low. This study aims to identify the role of family and school environments in shaping vegetable consumption practices among early childhood students at PAMARDI PUTRA Kindergarten from a sociocultural perspective using a quantitative model. The population was selected through proportionate stratified random sampling, consisting of 17 students and their parents, as well as 3 teachers. Data were collected through questionnaires distributed to each participant and anthropometric measurements to determine Body Mass Index (BMI) as an indicator of students' nutritional status. The results show that the coefficient of determination (R^2) indicates that mothers' attitudes explain approximately 98.6% of the variation in children's nutritional status, while teachers' attitudes account for 75.3%. The remaining variation is influenced by other factors, such as children's behavior, family economic conditions, availability of time for mothers and teachers, genetics, and household eating culture.

Keywords: Family Environment, School Environment, Vegetable Consumption, Early Childhood, Sociocultural Perspective.

I. Introduction

Vegetable consumption among early childhood children is an important factor influencing both cognitive and physical development. For kindergarten-aged children (approximately 4–6 years old), consuming vegetables not only affects their physical health but also plays a role in mental well-being, intelligence, immune system strength, and social interaction with peers. Insufficient vegetable intake can lead to reduced concentration, poor physical condition, and fatigue. Conversely, excessive consumption of certain vegetables may cause difficulties in bowel movements (constipation), bloating, and even thyroid disorders if consumed in large quantities. Therefore, monitoring is necessary to ensure that children consume vegetables in balanced amounts to support optimal growth. In Indonesia, many people especially children consume insufficient amounts of vegetables. Along with modernization and increasing income levels, junk food or fast food has grown significantly in urban areas and is likely expanding into smaller regions as well. These foods negatively influence children's eating patterns. The popularity of junk food among children is very high, which

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may encourage them to consume more junk food than vegetables. Research from the Indonesian Ministry of Health reports that 93.5% of children in Indonesia still have low vegetable intake. This percentage is based on surveys indicating that consuming fewer than five servings of vegetables per day falls into the lowest category.

Vegetable consumption in early childhood is influenced by both family and school environments. Some parents lack awareness of the importance of vegetables in supporting healthy child development. Often, vegetables with less appealing tastes are avoided. In addition, complicated preparation processes lead parents to prefer foods that are easier to obtain, cheaper, and often less nutritious. This situation contributes to the reduced level of vegetable consumption among children. Hartono et al. state that when parents rarely introduce vegetables, children are more likely to maintain low vegetable consumption habits into adulthood. In the school environment, teachers also play a significant role in influencing children's vegetable consumption. Teachers can remind and educate children about the importance of eating vegetables for their growth. However, some teachers still lack sufficient understanding of the importance of nutritious foods such as vegetables. Roziana et al. (2023) note that many teachers still need improvement in implementing vegetable education programs for early childhood. Therefore, enhancing teachers' nutritional knowledge is essential, as it will enable them to better motivate children to increase their vegetable intake. This study examines the relationship between family and school environments and the level of vegetable consumption among early childhood children from a sociocultural perspective. The aim is to expand the knowledge of parents and teachers, making it easier for them to motivate children to consume more vegetables.

II. Literature Review

2.1 Vegetable Requirements for Early Childhood

According to Roziona et al., in their research, consuming vegetables is very important for early childhood because it supports children's growth and development. Vegetables contain many vitamins, fiber, minerals, and antioxidants that help prevent various health problems such as weakness, fatigue, lethargy, and lack of concentration. Diana et al. state that the WHO recommends a daily vegetable intake of 150–200 grams for young children. Early childhood is encouraged to consume a variety of vegetables, including green, yellow, and orange types. This is necessary to meet balanced nutritional needs, as each type of vegetable contains different nutrients. Children who frequently consume vegetables tend to:

a. Rarely get sick
b. Have more sensitive and healthier senses
c. Grow and develop normally
d. Have better cognitive abilities

2.2 The Role of the Family Environment in the Level of Vegetable Consumption in Early Childhood

The family environment is closely related to children's growth in terms of health, nutritional intake, and personality development. Within the family, parents play a crucial role as agents who support and guide children in the socialization of eating behaviors. Parents act as educators, protectors, supervisors, role models, and providers of children's needs. Children also tend to imitate behaviors they observe at home; they learn eating habits from their parents. Positive parental habits can increase children's acceptance and preference for vegetables. In addition, the availability and accessibility of vegetables within the household are important determinants influencing consumption behavior, as children tend to eat foods that are easily accessible and regularly available.

2.3 The Role of the School Environment in the Level of Vegetable Consumption in Early Childhood

The school environment is one of the settings that provides a social and structural context influencing children's behavior. Natasha N et al. state that schools are strategic places to implement nutrition education for children. The active role of teachers in encouraging children to develop the habit of eating vegetables can have a significant positive impact. Children are also more interested in consuming vegetables when they see their peers eating them. Furthermore, various engaging and diverse programs that promote vegetable consumption can increase children's interest, broaden their experiences, and shape their preferences regarding the importance of eating vegetables.

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III. Method

This study identifies the role of family and school environments in shaping vegetable consumption practices among early childhood students at PAMARDI PUTRA Kindergarten from a sociocultural perspective using a quantitative model. The population was selected through proportionate stratified random sampling, consisting of 17 students and their parents, as well as 3 teachers. Data were collected באמצעות questionnaires (ranging from "never" to "always" on a 1–5 scale) and anthropometric measurements were conducted to determine students' Body Mass Index (BMI) as an indicator of nutritional status. The instruments were tested for content and construct validity, while reliability was assessed using Cronbach's Alpha (mother's attitude: 0.97; teacher's attitude: 0.96). Data analysis included linearity testing, descriptive analysis, and normality testing using the Kolmogorov–Smirnov test.

IV. Results and Discussion

Direct observation at Pamardi Putra Kindergarten was conducted to collect the data required for this study, beginning with obtaining research permission from the school principal. A total of 17 parents and teachers were selected as respondents using a purposive sampling technique. The selected parents were primarily mothers, as they are the main providers of food for their children, while the teachers involved were those actively working during the questionnaire distribution. Data collection was carried out through the distribution of structured questionnaires related to healthy food consumption, particularly vegetables, to students, which were then forwarded to parents and teachers. Kindergarten age represents a stage in which children begin to develop food preferences. At this stage, children can reject foods they do not like. Therefore, parents must present food appealingly and enjoyably to reduce food rejection. Bastian et al. emphasized that parental behavior plays a crucial role in shaping children's eating patterns, as parents are responsible for creating an engaging environment that supports children's nutritional needs. According to Roziana et al., teachers also play a significant role in guiding students toward positive behaviors. Teachers act as inspirational role models capable of transforming unhealthy habits into healthier ones. Their behavior can influence students' consumption patterns, particularly in encouraging the intake of healthy foods such as vegetables. The way teachers interact with students generates varying responses, which may indirectly shape students' habits and behaviors over time.

The school environment serves as a secondary setting where children spend a considerable amount of time. Schools function as places where students acquire knowledge, social skills, and character development. Routine school activities, including healthy lifestyle practices, play a significant role in shaping disciplined and healthy behaviors. Purba et al. stated that habits such as maintaining cleanliness and consuming healthy foods, including vegetables, contribute to the development of positive character traits in students. Observations at Pamardi Putra Kindergarten revealed that most children were around five years old. At this age, children demonstrate high curiosity and simple logical thinking. However, they are also vulnerable in making food choices. Incomplete or negative information can influence their perspectives on food. Easily accessible, inexpensive, and tasty foods such as junk food often become more appealing than healthier options like vegetables.

Meanwhile, parents and teachers were generally between 27 and 40 years old, representing early adulthood and maturity stages. At this stage, they are actively engaged in careers, accessing information through media, and fulfilling caregiving roles. However, limitations in time often lead to unstable nutritional practices, with a tendency to provide fast food due to convenience. Most surveyed mothers had a moderate level of education, which theoretically enables them to absorb nutritional information from social media and apply it in determining children's dietary needs. The survey focused on two aspects: attitudes and actions. The results showed that mothers' attitude scores ranged from 33 to 55, with a mean of 47, median of 47, mode of 44, and a standard deviation of 13.89. Teachers' attitude scores ranged from 39 to 51, with a mean of 46 and median of 49. These findings indicate that both parents and teachers demonstrate relatively good habits in fulfilling children's nutritional needs, particularly in vegetable consumption. However, vegetables remain one of the least preferred foods among early childhood children.

Ariani et al. identified several factors that parents must consider in establishing healthy eating habits, including the availability of healthy food at home, parental role modeling, early habituation, food presentation, feeding practices, consistency in rules, simple nutritional education, positive reinforcement, and a pleasant eating environment. Parents' eating habits directly influence their children. For instance, parents

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who frequently consume vegetables are more likely to have children who adopt similar preferences. Introducing various types of vegetables can stimulate children's curiosity and understanding of their nutritional benefits. Food presentation also plays a crucial role in attracting children's interest. Young children are naturally drawn to creative and visually appealing foods. Sylvia and Muladi (2025) highlighted that color, shape, and taste combinations are essential aspects of attractive food design. Additionally, parents' emotional state during feeding is important. Excessive force in feeding can lead to discomfort and food rejection. Consistency in including vegetables in meals can gradually shape children's eating habits. Early childhood is characterized by strong curiosity and exploratory behavior; therefore, simple nutritional education can stimulate cognitive curiosity and encourage positive attitudes toward vegetable consumption.

A supportive and comfortable eating environment further enhances children's acceptance of healthy foods. Positive interaction during meals without tension contributes to better eating experiences. In the school environment, several factors can increase vegetable consumption among children, including group eating programs, peer influence, nutrition education, and engaging teaching methods. Group eating activities introduce children to various vegetable-based foods. Peer influence is particularly strong at this age, as children tend to imitate their peers' behaviors. Students who enjoy vegetables can positively influence others. Teachers are also responsible for delivering simple and engaging nutritional education. Rukmiyati et al. (2024) emphasized the importance of introducing vegetables through interactive learning methods, such as songs and educational media. Activities like matching colors and nutritional content on vegetable posters can stimulate cognitive development and active learning. This multisensory approach enhances children's ability to absorb information effectively.

The study also calculated children's nutritional status using the weight-for-height (BB/TB) index based on WHO standards. The highest value recorded was 18.14 and the lowest was 13.02, with a median of 15.72 and mode of 16.33. The WHO classification indicated that most children fell within the normal range (86%–120%), from underweight to overweight categories. Nutritional status reflects the relationship between nutrient intake and the body's needs. It can be measured using indicators such as weight, height, body mass index (BMI), and age. Nutritional status is categorized as undernutrition, normal, or overnutrition (obesity). Pratama et al. (2023) stated that nutritional status significantly affects child development. Adequate nutrition supports both physical and cognitive development, including memory, concentration, and information processing abilities. The findings showed variation in children's nutritional status, indicating that some families and teachers have not fully implemented healthy eating practices. Other influencing factors include socioeconomic conditions, genetics, and media exposure. Anggraini et al. noted that these factors can hinder improvements in children's nutritional status.

Nasrianti et al. explained that poor nutritional status can also affect children's emotional stability, leading to aggressive behavior, difficulty in decision-making, and challenges in social interaction. These conditions may hinder long-term growth and development. The Kolmogorov-Smirnov normality test indicated that all variables were normally distributed ($p > 0.05$): mothers' attitudes (0.115), teachers' attitudes (0.212), and nutritional status (0.129). Pearson correlation analysis revealed a very strong positive relationship between mothers' scores and children's nutritional status ($r = 0.993$), with a coefficient of determination (R^2) of 0.986. The regression equation was $Y = 10.12 + 0.134X$. Similarly, the correlation between teachers' scores and children's nutritional status was strong ($r = 0.868$), with $R^2 = 0.753$ and regression equation $Y = 10.46 + 0.092X$.

These results highlight the importance of improving mothers' nutritional knowledge, as they play a central role in family nutrition. Increased knowledge enables better food selection, particularly vegetables rich in vitamins and minerals, supporting optimal child development. Kartika et al. emphasized that teachers also have a significant influence as role models. Enhancing teachers' nutritional knowledge enables them to identify signs of malnutrition and provide effective educational interventions. Schools can further support this by implementing healthy eating programs, providing healthy canteens, and displaying nutrition-related educational materials. It is important to note that while mothers' attitudes explain 98.6% of the variation in children's nutritional status and teachers' attitudes explain 75.3%, the remaining variance is influenced by other factors such as children's behavior, family economic conditions, time availability, genetics, and cultural eating habits. These findings underscore the need for a multisectoral approach involving healthcare services, such as community health centers, and broader community support to improve children's nutritional status, particularly in vegetable consumption.

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V. Conclusion

Encouraging vegetable consumption among early childhood children remains an important challenge. This study reveals that barriers exist at various levels, including children's biological predispositions, parenting practices, and the school environment. These interconnected influences indicate that efforts to increase vegetable intake cannot be limited to individual behavioral changes alone, but must adopt a socio-ecological and structural approach. By placing vegetable consumption within the broader framework of children's growth and development, creating a consistent and supportive nutrition-conscious environment at home and at school is essential. Parents and teachers play a crucial role in shaping children's food preferences through maximum and continuous efforts. In the future, this study calls for more integrated strategies involving all stakeholders, including children, families, educators, communities, and policymakers, to foster positive eating behaviors and ensure a healthier future generation. Addressing barriers to vegetable consumption in childhood is not only a matter of improving short-term nutrition, but also a long-term investment in public health, educational outcomes, and national human resource development.

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