The Relationship Of Vegetable And Fruit Consumption With Nutritional Status Of Children School-Age (6-10 Years Old) At Ebf 28 De Agosto, Ebf 01 De Maio Palaban, Ebf St.Antonio Oe-Cusse, Ebf Nossa Senhora De Fatima Padiae Municipiu Regiao Administrativa Espesial Oe-Cusse Ambeno Timor Leste Year 2024

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Abstract.

This study aims to analyse the relationship between vegetable and fruit consumption and nutritional status among school-age children in Regiao Administrativa Espesial Oe-Cusse Ambeno Timor Leste, and to identify factors associated with children's nutritional status. This study used a quantitative approach with a cross-sectional design. Data were collected through a questionnaire that measured the frequency of vegetable and fruit consumption, and measurement of nutritional status using anthropometric indicators. The study population was school-age children in Regiao Administrativa Especial Oe-Cusse Ambeno Timor Leste with the sampling technique used was simple random sampling. Fruit consumption patterns showed that 45.4% (79 respondents) of children rarely consumed fruit (<3 times per week). Most children were malnourished, with 69.5% (121 respondents) experiencing wasting. Another factor was preference for vegetables and fruits. These two factors showed a strong and significant association (r = 0.728 for vegetables, r = 0.725 for fruits, p = 0.000), indicating that children who had a high preference for vegetables and fruits were more likely to have better nutritional status. Child age was also found to have a significant but weak association (r = 0.278, p = 0.000) with nutritional status, suggesting that although influential, child age is not the main factor in determining nutritional status. Preference for vegetables and fruits had a significant relationship with children's nutritional status. Age also has an effect, although it is weaker. No significant relationship was found between nutritional status and parental education, meal timing, and media exposure. The implication is that there is a need to increase vegetable and fruit consumption through nutrition education programmes in schools and communities, and the development of healthy eating habits.

Keywords: *Vegetable, Fruit, Nutrition, Children, School and Consumption.*

I. INTRODUCTION

Timor-Leste's health profile from the World Life Expectancy, the nutritional status of children including the school age group (6-12 years) remains a major problem. Malnutrition, particularly stunting and anaemia, continues to contribute to the health burden. School-aged children are at significant risk from malnutrition, which can hinder their ability to grow physically and cognitively. This challenge is compounded by limited access to nutritious food and adequate health services [1]. The Word Food Programme's ‘Say No to 5S’ programme in Timor-Leste aims to improve the health and nutrition of school children by focusing on five key issues: Starvation, Soil-transmitted Helminthiasis, Skin diseases, Smoking, and Sugary/Alcoholic Drinks. The programme involves the distribution of nutritious food in schools, deworming, and health education. The programme also includes the construction of school kitchen facilities to ensure access to healthy food for school children [2].The geography of the district is quite remote and dominated by hills, resulting in limited access to basic infrastructure such as roads, health facilities, and food distribution [3]. Nutritional status in Regiao Administrativa Especial Oe-Cusse Ambeno Timor Leste remains a significant challenge, especially among school-aged children 6-10 years old. Although the prevalence of stunting at 47.1% and wasting at 8.6% is commonly reported for children under 5 years of age, these nutritional problems are likely to continue into school age due to the impact of malnutrition

experienced at an early age [4] Children aged 6-10 years in Oe-Cusse are particularly vulnerable to stunting and wasting due to limited access to nutritious food, caused by reliance on subsistence agriculture and limited infrastructure. The lack of dietary variety and limited sources of healthy food exacerbate nutrition problems in the school-age group.

This is compounded by a lack of access to clean water and sanitation, which contributes to an increased risk of infectious diseases that can exacerbate nutritional problems in children[5].The prevalence of stunting, wasting and underweight is a challenge, caused by a combination of factors, including limited access to nutritious food, inadequate health infrastructure and a lack of parental awareness about the importance of nutrition for child development[6]. Efforts to address these issues have been made through various nutrition intervention programmes supported by UNICEF and other international partners. In Oe-cusse, programmes such as the Parenting Programme seek to improve parents' knowledge and skills in providing better care to their children, including nutrition and early stimulation [7]. Despite efforts to improve nutritional conditions in the Regiao Administrativa Especial Oe-Cusse Ambeno Timor Leste, major challenges such as stunting and wasting remain a serious problem. An approach that involves educating parents about the importance of nutrition as well as increasing access to nutritious food is crucial to addressing these issues and ensuring that children in Oe-Cusse can grow and develop healthily.Based on the above data, research on malnutrition, such as stunting and anaemia, remains a major challenge affecting children's physical growth and cognitive development. This study will make a significant contribution to understanding the role of fruits and vegetables as an important part of a balanced diet, and their impact on improving nutritional status. It will also serve as a reference for formulating more effective health policies, strengthening school feeding programmes, and improving community understanding of the value of a healthy diet for the future of children in the Regiao Administrativa Especial Oe-Cusse Ambeno Timor Leste.

II. METHODS

This study used a cross-sectional design. Crsoss is the most appropriate research design to see the relationship between vegetable and fruit consumption and nutritional status. In this design, data collection regarding the level of vegetable and fruit consumption and nutritional status of children is carried out simultaneously (at the same point in time). This design does not aim to identify cause-and-effect relationships, but rather to observe whether there is an association or relationship between two variables in the population under study at the time of data collection [8]. The study population included all school-aged children in Regiao Administrativa Especial Oe-Cusse Ambeno Timor Leste, aged 6 to 10 years. At this age, children are in a phase of rapid physical growth and cognitive development, so their nutritional status is highly dependent on a balanced intake of nutrients, including vegetable and fruit consumption.

A sample is a subgroup of the population selected to participate in a study. This sample was selected so that the results of the study could be generalised to a wider population, namely school-aged children (6-10 years old) in Regiao Administrativa Especial Oe-Cusse Ambeno Timor Leste. The sample must be large enough and representative enough to provide accurate results on the relationship between vegetable and fruit consumption and nutritional status.Data processing methods involve the process of collecting, checking, and presenting data that has been collected from research instruments. Once data has been collected from various instruments such as questionnaires, anthropometric measurements, and observations, the data processing step involves several important steps[9].The data analysis technique aims to examine the relationship between vegetable and fruit consumption and children's nutritional status. The processed data were analysed using appropriate statistical techniques.

III. RESULT AND DISCUSSION

1. Model Summary

Based on the results of the multiple linear regression test that has been conducted, this model shows a significant relationship between several independent variables and children's nutritional status. Based on the Model Summary, the R Square of 0.583 indicates that 58.3% of the variation in nutritional status can be explained by the independent variables included in the model. This suggests that the regression model has

good power in explaining the nutritional status of children in the sample studied.The model showed that Fruit Preference, Food Development, and School Age had a significant effect on nutritional status. The coefficient for Fruit Preference is the largest among all the independent variables tested, with a value of B = 1.142, indicating that an increase in preference for fruit can significantly improve children's nutritional status. This suggests that children who prefer fruit tend to have better nutritional status. This is particularly relevant given the importance of fruit consumption in a healthy diet that supports optimal growth and development in children.Based on the results of the multiple linear regression analysis, it can be concluded that factors such as fruit preference, food development, and school age have a significant influence on children's nutritional status. However, other variables such as eating environment & programme, media and advertising exposure, and meal timing did not show a significant relationship when included in the multivariate model. Therefore, special attention needs to be paid to intervention programmes that increase fruit consumption and ensure the availability of nutritious foods that support optimal dietary development.

2. Anova

Based on the results of the F test in the multiple linear regression analysis, an F value = 28.796 with a p-value = 0.000 was obtained. The very high F value, together with the very small significance value ($p < 0.01$), indicates that the overall regression model is significant. That is, the independent variables included in the model make a significant contribution in explaining variations in the nutritional status of children in the sample studied.

a)Interpretation of F value and p-value

F value = 28.796: This high F value indicates that the regression model as a whole explains the variation in nutritional status well. In a regression test, F measures the extent to which the independent variables collectively contribute to the change in the dependent variable (nutritional status). The higher the F value, the stronger the relationship between the independent variable and the dependent variable.value = 0.000: A very small p-value ($p < 0.01$) indicates that the relationship found does not occur by chance. In other words, it can be concluded that the multiple linear regression model used in this analysis provides highly significant results. In this context, a small p-value (smaller than 0.05) indicates that there is a clear and strong relationship between at least one independent variable and the nutritional status of children.

b)Effect of Independent Variables on the Model

Based on the F test results, it can be concluded that at least one of the independent variables included in the model makes a significant contribution to the prediction of nutritional status. Variables such as fruit preference, food development, and school age are likely to contribute significantly, as described in the regression coefficient table. Nonetheless, although the F indicates the overall significance of the model, it should be noted that the individual influence of each independent variable needs to be further analysed based on the t-test to determine which variable has the most influence.

c)Context in the Literature

These significant F-test results support the findings of Rahayu et al. (2020), which suggest that variables such as fruit preference and food development play an important role in influencing children's nutritional status. They stated that interventions that change children's eating habits, especially in terms of fruit consumption and access to nutritious foods, can have a major impact on children's nutritional status.

d). Meal Time (B = -0.018, Sig. = 0.704)

The B coefficient of -0.018 indicates that mealtime has a very weak negative effect on nutritional status. This effect is not significant enough to affect children's nutritional status. The p value (Sig.) = 0.704 is greater than 0.05, indicating that mealtimes have no significant effect on nutritional status. Although regular mealtimes are often considered important in healthy eating habits, in this analysis, mealtimes did not play a significant role.The data above shows that meal times have a very weak effect on children's nutritional status, with a coefficient of B=-0.018 and a value of p=0.704. This finding confirms that meal timing is not a significant factor in determining children's nutritional status. While regular meal patterns are often recommended to support healthy eating habits, their impact appears to be more indirect, such as on metabolic regulation and sleep patterns. In this context, an approach that focuses too much on mealtimes without

considering the quality and diversity of the diet may be ineffective in improving children's nutritional status. As such, these results reinforce the need to prioritise more strategic and evidence-based interventions.

a)Media and Advertising Exposure (B = 0.054, Sig. = 0.191)

The B coefficient of 0.054 indicates that media exposure and advertising have a very weak positive influence on nutritional status. Although there is a positive relationship, this influence is not strong enough. The p value (Sig.) = 0.191 is greater than 0.05, which indicates that media exposure and advertising have no significant effect on nutritional status. This indicates that while media and advertisements may influence children's food preferences, their effect on nutritional status is not significant.School-based interventions also play an important role in improving children's eating habits, as evidenced by who reported the success of a multicomponent education programme in increasing fruit and vegetable consumption among children[10]. However, these findings indicate that the success of such programmes requires collaboration between schools, families and communities. In my opinion, nutrition education should be integrated into the national curriculum as part of a long-term approach to improving overall nutritional status. On the other hand emphasised that socioeconomic inequality remains a major barrier, as many underprivileged families do not have adequate access to nutritious food [11].

b)Food Development (B = -0.874, Sig. = 0.000)

The B coefficient of -0.874 indicates that food development has a strong negative influence on nutritional status. This coefficient shows that the worse the food development (for example, lack of access to nutritious food), the lower the child's nutritional status. The p value (Sig.) = 0.000 indicates that food development has a very significant effect on nutritional status. This negative influence shows that lack of access to healthy food and suboptimal food development can greatly affect children's nutritional status.The B coefficient -0.874 indicates that food development has a strong negative influence on children's nutritional status and the p value (Sig.) = 0.000 which is far below the significance threshold of 0.05 indicates that this relationship is highly statistically significant. In other words, the worse the food development, which includes lack of access to nutritious food, inadequate food distribution, or low food quality, the lower the child's nutritional status. These findings are very relevant for understanding the main causes of malnutrition problems, such as stunting, wasting and obesity, which are often found in various regions with inadequate food infrastructure.

IV. CONCLUSION

Almost half of the respondents had a low vegetable consumption (<3 times per week) of 47.7% (83 respondents) and a low fruit consumption pattern of 45.4% (79 respondents) rarely consumed fruit (<3 times per week) in school-age children in Regiao Administrativa Especial Oe-Cusse Ambeno Timor Leste. Most children's nutritional status was wasting at 69.5% (121 respondents) among school-age children in Regiao Administrativa Especial Oe-Cusse Ambeno Timor Leste.There is a relationship between vegetable and fruit consumption and nutritional status of school-age children in Regiao Administrativa Especial Oe-Cusse Ambeno Timor Leste.

Other factors associated with nutritional status in school-age children in Regiao Administrativa Especial Oe-Cusse Ambeno Timor Leste: (1) The factors of vegetable preference ($r = 0.728$, $p = 0.000$) and fruit preference ($r = 0.725$, $p = 0.000$) showed a strong and significant relationship with nutritional status in school-age children in Regiao Administrativa Especial Oe-Cusse Ambeno Timor Leste. (2) The factor of child age had a weak but significant relationship ($r = 0.278$, $p = 0.000$) with nutritional status in school-age children in Regiao Administrativa Especial Oe-Cusse Ambeno Timor Leste. (3) There was no significant relationship between nutritional status and parental education level, meal timing, and media & advertising exposure in school-age children in Regiao Administrativa Especial Oe-Cusse Ambeno Timor Leste.

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