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Research Article

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Eating Habits and Pathological History Related to Malnutrition in Children Aged 2 to 5 Years, Health Center, Achuapa

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ABSTRACT

At the regional level and in many cases at the national level it is possible to simultaneously identify malnutrition. Malnutrition caused by nutrient deficiencies continues to be very prevalent, even increasing, threatening to become an endemic disease in the region. Our research belongs to objective number 3. Guarantee a healthy life and promote well-being for all ages.

Child malnutrition is among the first five causes of mortality and is inserted in a context of social, economic and cultural variables that, in addition to being very unfavorable, are, in themselves, risk factors that alter child development. The objective of this research is to analyze the eating habits and pathological history related to malnutrition in children aged 2 to 5 years, health center, Juan Rafael Rocha Ramírez, Achuapa, III quarter 2021.

An epidemiological, analytical, case-control study was carried out. The collection method is a survey in which a home visit was carried out. The study population is made up of 201 children, 67 with malnutrition (cases), 134 with a negative diagnosis (controls). It was found that 90% of the population lived with mom and dad, 53.2% were male, 59.2% were from rural backgrounds, 55.2% attended preschool, with the majority being in first level with 27.4%.

When analyzing the anthropometric measurements, it was found that P/T, T/E, P/E, BMI/E and upper arm circumference behaved as a risk factor with a X2 of 0.001.

In relation to carbohydrate portions, a risk factor was obtained that increases 1.06 times the probability of developing malnutrition in children between 2 and 5 years of age.

In relation to the frequency of diarrheal diseases, a risk factor was found that increases the probability of developing malnutrition 3.3 times in children aged 2 to 5 years.

Keywords: Malnutrition, Eating Habits, Pathological History, Children

Introduction

Of the almost 11 million children under 5 years of age who die annually around the world, half do so due to malnutrition. About 10 - 20% of preschoolers in developed countries and 30 - 80% in developing countries are anemic during the first year of age; The global crisis due to rising food prices aggravates the situation and generates “a new face of hunger” and malnutrition [1].

Nicaragua, after Guatemala, is the Latin American country most impacted by chronic childhood malnutrition, which affects 27% of the primary school population nationwide. However, in rural areas where 68% of poverty is concentrated, this rate is higher, reaching up to 44.5% in the most marginalized and vulnerable population. According to the Human Development Index for 2013, Nicaragua ranked 132 with a value of 0.614 [2].

Recently, the pediatric department of the Oscar Danilo Rosales Argüello School Hospital in León has observed that a growing number of cases of severe malnutrition in children come from the municipality of Santa Rosa del Peñón, despite the fact that, according to data with According to the Santa Rosa del Peñón health center, the malnutrition observed in the area is minimal [3].

In the year 2012, Nasu Cuevas and Dommarco Rivera carried out a study titled Chronic malnutrition in the child population of localities with fewer than 100,000 inhabitants in Mexico, calculating the prevalence of low weight, chronic malnutrition, and wasting. He 4.4% presented underweight, 14.9% chronic malnutrition and 1.5% wasting. Chronic malnutrition was higher

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in indigenous households 24.5%, households with greater socioeconomic deprivation (17.5%), and households with moderate/severe food insecurity (15.3%) [4].

In the year 2018, Osorio Ana and Fernando Aguado, carried out a study entitled Socioeconomic context of the community and chronic childhood malnutrition in Colombia, stating that at the individual and household level, the probability of chronic malnutrition was greater for children of mothers with low levels of autonomy and use and access to the health system, who have had their first child in adolescence and who live in households in the lowest wealth quintiles [5].

In the year 2020, Delgado Carla, carried out a study entitled Risk factors associated with complications of gastroenteritis in children in Ecuador, where she expresses that there is an important relationship between moderate malnutrition and complications in gastroenteritis; and also, a statistically significant relationship between secretory diarrhea and the presence of dehydration [6].

In developing countries, child malnutrition is among the first five causes of mortality and is inserted in a context of social, economic and cultural variables that, in addition to being very unfavorable, are, in themselves, risk factors that alter child development [7].

When the family's feeding practices do not offer the child the quality and quantity of food required, nor an environment that encourages sufficient intake to guarantee optimal growth and development, the child adapts to this situation by saving energy through a decrease in physical activity and growth arrest, since in this way it is unable to maintain a stable energy balance which leads to malnutrition [8].

Diarrheal diseases, measles, AIDS, tuberculosis and other infections frequently produce a negative balance of proteins and energy due to decreased appetite, vomiting, alterations in nutrient absorption and increased catabolic processes, therefore, they can lead us to malnutrition. Intestinal parasites have little or no effect unless the infection is massive and causes anemia or prolonged diarrea [9].

Due to the above, it is considered important to answer the following research question.

What is the relationship between eating habits, pathological history and malnutrition in children from one year 2 to the next 5 health center, Juan Rafael Rocha Ramírez, Achuapa III quarter 2021?

Goals

General Objective

Analyze eating habits and pathological history related to malnutrition in children aged 2 to 5 years, health center, Juan Rafael Rocha Ramírez, Achuapa III quarter 2021.

Specific Objectives

- Determine the prevalence of malnutrition in children aged 2 to 5 years health center, Juan Rafael Rocha Ramírez, Achuapa III quarter 2021.
- Sociodemographically characterize the study population.
- Evaluate eating habits related to malnutrition in children from 2 to 5 years old health center, Juan Rafael Rocha Ramírez, Achuapa
- Determine pathological history related to malnutrition in children from 2 to 5 years old health center, Juan Rafael Rocha Ramírez, Achuapa

Methodological Design

Type of study: It is an epidemiological, analytical, case-control study.

This research is analytical in nature because it aims to establish the causal relationship between eating habits and pathological history with the development of malnutrition in children from 2 to 5 years old. To establish this analysis, a comparison was carried out between a group of children with malnutrition, comparing them with a control group without the disease [10].

Study Area

The town of San José de Achuapa was established as such by law of March 15, 1870. It was annexed to the department of Nueva Segovia, both politically, administratively and judicially. Years later, the municipality became part of the department of León to which it is attached today. The municipality occupies the northern end of the department of León. It is located in a mountainous area and on the western foothills of the Estelian Quibuc Mountains. The current population of the municipality is approximately 14,000 inhabitants (taking the 1995 National Census as a reference) [11].

The population density is approximately 38 inhabitants/km^2. The vegetation of the municipality is located in medium, tall, sub-deciduous and evergreen forests in semi-humid areas. It has a dry subtropical climate. The main economic activities are agricultural production, with basic, non-traditional grains (sesame), dual-purpose livestock, and commerce.

During the drought between 2005 and 2012, a high rate of malnutrition occurred, representing the dry corridor with the highest malnutrition in infants and the adult population. The health center is located in the center of the municipality, 2c 1/2 from the central park. It has 10 health posts which serve 23 communities for a total of children [12].

Study Population

It was made up of 201 children, 67 cases and 134 controls (two controls for each case) of children (2 to 5 years old) who belong to the health center, Juan Rafael Rocha Ramírez, Achuapa, of whom decided to participate in the study. study.

Inclusion Criteria:

- That meet the case criteria:
- That they are children between the age range of 2 to 5 years.
- Of both sexes.
- That they belong to the health center, Juan Rafael Rocha Ramírez, Achuapa. 25
- Who wish to participate in the study.

Exclusion Criteria:

- That do not meet the case criteria.
- Who do not wish to participate in the study.
- That they are not within the previously established age ranges.

Control Definition

Children of both sexes with negative results of anthropometric measurements, P/T below -2.1α -3, moderate acute malnutrition, T/E below -2.1α -3, moderate chronic malnutrition, P/E below -2α -3, moderate global malnutrition, BMI for age below -2.1α -3, moderate acute malnutrition, from the health center, Juan Rafael Rocha Ramírez, Achuapa.

Information Collection Method

The collection method was a survey that was carried out during the home visit, explaining the purpose of the study and that the information provided will be confidential, a letter was delivered to request permission and authorization to the director of the Ministry of Health Achuapa, explaining the objective of the investigation, to access the requested information.

Information Processing and Analysis

Information analysis The information was processed in the statistical program SPSS version 21.0.

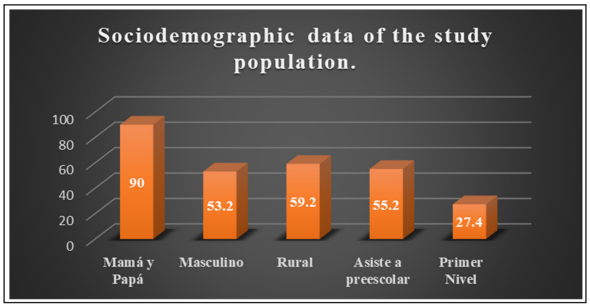
The analysis of the information was carried out through analytical statistics and using 2x2 contingency tables to demonstrate the association of the variables, the Chi Square statistical test (X2) was used, when X2 is less than 0.05 there is an association between the variables, when protective factor, while an OR greater than 1 indicates a risk factor, if the OR is equal to 1 it indicates a factor not associated with the phenomenon under study.

The analysis was carried out with a 95% confidence interval, therefore the lower and upper natural limit was used to determine the risk of the variable; if it contains the unit in its interval, there is no statistical significance in the data. The information was presented through tables and graphs to facilitate understanding of the results.

Ethical Aspects: Charity, informed consent, autonomy, confidentiality and anonymity.

Results

In the sociodemographic data in the study population, it was found that 90% of the population lived with mother and father, 53.2% were male, 59.2% were from Rural origin, 55.2% attended preschool, the majority being first graders. level with 27.4%.



When measuring the relationship between anthropometric measures to evaluate the different types of malnutrition, it was found that in p/t 30 of the children had alterations, finding X2 0.001, an OR of 4.6 and Ln of 3.4-6.1, likewise in T/E and P/E 21 children with alterations with an X2 of 0.001, 0R of 3.9 and Ln of 3-5. In relation to BMI, a X2 of 0.001, OR of 5.4 and Ln of 3.9 -7.5 were found. When measuring upper arm circumference in relation to malnutrition, a x2 of 0.001 was found, an OR of 0.27 with Ln of 0.2-0.3.

Table 1: N°5 Consumption of micronutrients in the last 6 months in relation to the development of malnutrition in children from 2 to 5 years old

Vitamin A last 6 months	Malnutrition	Normal	Total	
No	eleven	8	19	X^2: 0.01 OR: 3.09 Ln: (1.1-8.1)
Yeah	56	126	182	
Dewormer last 6 months				
No	12	7	19	X^2: 0.004 OR: 3.95 Ln: (1.4-0.5)
Yeah	55	127	182	

Based on the relationship that exists between the consumption of Vitamin A and the development of malnutrition in children from 2 to 5 years old, it was found; that 11 cases did not consume Vitamin A in their last 6 months, presenting a X 2 :0.01, an OR:3.95 with lower limits 1.1 and upper limits 8.1.

The relationship that exists in the consumption of dewormer for the development of malnutrition in children from 2 to 5 years old, was found in 12 cases, X 2 :0.004, an OR: 3.95 with lower limits 1.4 and upper limits 10.5.

Table 2: N°6 Carbohydrate consumption in relation to malnutrition in children from 2 to 5 years old

Carbohydrate Consumption	Malnutrition in children			
	Malnutrition	Normal	Total	X^2: 0.036 OR: 2.76 Ln: (1.1-7.3)
No	10	8	18	
Yeah	57	126	187	
Carbohydrate Servings				
< 9 tablespoons	30	28	58	X^2: 0.001 OR: 3.06 Ln: (1.6-5.8)
> 9 tablespoons	37	106	143	

Based on the relationship between carbohydrate consumption and the development of malnutrition in children from 2 to 5 years old, it was found; that 10 cases did not include carbohydrates in their daily diet, presenting a X 2 :0.036, an OR:2.76 with lower limits 1.1 and upper limits 7.3.

In relation to carbohydrate portions and the development of malnutrition, the result was that 30 cases did not consume adequate portions and developed malnutrition, with a X 2 :0.001, an OR:1.06 with lower limits 1.6 and upper limits 5.8.

Table 3: N°13 Number of controls for age in relation to malnutrition in children from 2 to 5 years old

		Malnutrition in children		Total	
		Malnutrition	Normal		X^2: 0.04 OR: 1.9 Ln: (1.1 -3.5)
Controls for age	No	27	35	62	
	Yeah	40	99	139	

In relation to the VPCD controls and the development of malnutrition, the result was that 27 cases did not have the number of controls for their age and developed malnutrition, with a X^2 :0.04, an OR:1.9 with lower limits 1.1 and upper limits 3.5.

Table 4: N°15 Intestinal parasitosis in relation to malnutrition in children from 2 to 5 years old

		Malnutrition in children		Total	
		Malnutrition	Normal		
Diagnosis of intestinal parasitosis	Yeah	25	30	55	X^2: 0.025 OR 2.06 Ln (1.1-3.9)
	No	42	104	146	

Based on the relationship that exists between the presence of intestinal parasitosis and the development of malnutrition in children from 2 to 5 years old, it was found; that 25 cases had a diagnosis of intestinal parasitosis in the last 12 months, presenting a X^2: 0.025, an OR: 2.06 with lower limits 1.1 and upper limits 3.9.

Discussions

In the sociodemographic data in the study population, it was found that 90% of the population lived with mother and father, 53.2% were male, 59.2% were from Rural origin, 55.2% attended preschool, the majority being first level with 27.4%.

When evaluating the relationship between the anthropometric measurement P/T and malnutrition, it was found that 30 of the cases had an alteration in this, with variable association and an increase in risk of 4.6 times the probability of suffering from acute or present malnutrition was determined, these data with statistical significance. The same relationship was found in the anthropometric measurement T/E and malnutrition, where 21 of the cases had an alteration in this, with an association of variable and an increase in risk of 3.9 times the probability of suffering from malnutrition was determined. acute, these data with statistical significance; Likewise, for the P/E anthropometric measurement, where it was found that 21 of the cases had an alteration in this, with an association of variable and an increase in risk of 3.9 times the probability of suffering from both present and past malnutrition was determined, these data with statistical significance; The same relationship was found in the anthropometric measurement BMI/E and malnutrition, where 37 of the cases had an alteration in this, with variable association and an increase in risk of 5.4 times the probability of suffering from acute or malnutrition was determined. present, these data with statistical significance; It is worth mentioning that in some of the cases they had alterations in more than 1 anthropometric measurement.

When evaluating the relationship between the consumption of micronutrients and the development of malnutrition in children between 2 and 5 years old, it was found that when Vitamin A is not consumed, the risk of presenting malnutrition increases up to 3 times, in the same way when there is a deficiency in consumption. of deworming the risk of developing malnutrition increases up to 3 times, these results confirm those reported by the **Ministry of Health (IMCI)** for which a child should be administered micronutrients the first dose from 6 months then every 6 months, a A child who lacks micronutrients (vitamin and dewormer) is more prone to infections, which will be more serious and increase the risk of mortality. This situation can be aggravated due to the prolonged period of not consuming as it weakens the body and is more prone to to get sick. However, when measuring the relationship between iron consumption and the development of malnutrition, no variable association was evident, an OR of 1.4 was found, which does not present statistical significance, data that differs from the finding by Wisbaum Wendy who states that deficiency Iron during childhood reduces learning ability and motor development, as well as growth; It also damages the defense system against infections.

The **Ministry of Health** states that the adequate food and nutrition of a minor depends directly on the food they receive, according to their age. Age, in turn, conditions the type or quality of the food, the frequency, quantity and consistency of the same. Children from one year old should be given at least 103 grams of carbohydrates. This research presents similar data when evaluating the relationship between carbohydrate consumption and the development of malnutrition in children from 2 to 5 years old, it is found that children who do not add carbohydrates to their diet increase the risk of presenting malnutrition up to 2 times, likewise, when evaluating the relationship between carbohydrate portions and the development of malnutrition, it was found that consuming less than 9 tablespoons equivalent to less than 130 grams increases the risk of developing malnutrition up to 3 times.

Marjurie Garcia and Candida López point out that non-attendance in the surveillance, promotion, growth and development program continues to be a major problem since the child's health is neglected, potentially causing malnutrition due to the lack of nutrients and guidance provided in this program, this research presents similar data when evaluating the relationship between non-attendance at VPCD controls and the development of malnutrition in children from 2 to 5 years old, it is found that the risk of presenting malnutrition increases up to 1 times more, this situation can worsen due to the economic situation, the distance between the health unit and the home, forgetting scheduled appointments and lack of education on the part of parents or guardians since they are directly related to the reasons for non-attendance to the program.

When evaluating the relationship between the diagnosis of intestinal parasitosis, it was found that when these occur in the last 12 months, the risk of presenting malnutrition increases up to 2 times. These results confirm what was reported by **Latham Michael** for whom parasitic infestations, especially those due to to intestinal helminths, are very prevalent and their adverse effect on nutritional status has been increasingly demonstrated, especially in those who are heavily parasitized. This situation may be due to inadequate sanitary conditions and micronutrient deficiency in the main dewormers.

Conclusions

The study was carried out with a sample of 201 participants, 67 cases and 134 controls, the age was defined between 2 and 5 years, obtaining a mode of 2 years, predominating the male

gender and the rural area, of the total participants 90% live together. with their mother and father, 55.2% attend preschool, the majority being first level with 27.4%.

In relation to weight, the mode, minimum and maximum data was 18 kg, 9 kg and 27 kg respectively, in the same way the height with 95 cm, 75 and 125 cm, and the BMI with 15 kg/m^2, 8.5 kg /m^2 and 23 kg/m^2.

Regarding the anthropometric measurements, it was found that height for age T/E, weight for age P/E were variables that triple the risk of developing both acute and present and past malnutrition, likewise weight for height P/T was a variable that increased the probability of developing acute or present malnutrition 4 times; however, BMI is a risk factor that increases the appearance of acute or present malnutrition 5 times.

To determine the prevalence of malnutrition in children aged 2 to 5 years in the municipality of Achuapa, the following formula was used, ***P = Nº de evento/Total*** resulting in a prevalence of 33.3%.

Regarding eating habits, it was found that vitamin A deficiency and deworming in the last 6 months, inadequate portions of carbohydrates and not including lipids in the daily diet were variables that increased the probability of developing malnutrition by 3 times, other variables are not consuming carbohydrates and not consuming adequate portions of protein were variables that doubled the presence of malnutrition in the studied population; It is worth mentioning that some of the cases had alterations in more than 1 anthropometric measurement.

Regarding the pathological history, it was evident that the frequency of diarrhea and non-attendance at VPCD controls increased the probability of developing malnutrition one more time, likewise the frequency of acute respiratory infections (ARI) and the diagnosis of intestinal parasitosis were variables that they doubled the probability of developing malnutrition in the population studied.

Not having the complete vaccination schedule is a risk factor that triples the appearance of malnutrition. Another variable that causes malnutrition in children from 2 to 5 years old is the number of times diarrhea occurs during the year with a adjusted OR value of 8.5.

Recommendations

According to the study on: Eating habits and pathological history related to malnutrition in children from 2 to 5 years old health center, Juan Rafael Rocha Ramírez, Achuapa III Quarter.

- **To the Management of the Institution**

Strengthen health promotion, by carrying out strategies for the promotion and prevention of prevalent childhood diseases; give more exhaustive follow-up to malnourished children and keep them under constant monitoring.

- **To Parents**

Improve children's diets as much as possible, include protein consumption in their diets, and implement strategies so that they can provide children with a nutritious diet.

- **To Future Researchers**

Future researchers are recommended to carry out new studies in relation to the different aspects of nutrition, as well as pathological antecedents that influence malnutrition in children.

That they include new variables in their study such as socioeconomic factors, number of children, etc.

That this study be followed up to provide more representative data and a broader vision of the eating habits and pathological history that predispose to the development of malnutrition.

References

1. Jara Navarro, María Inés. Hunger, malnutrition and anemia: a serious public health situation. Health Management and Policy Magazine. 2012. 7: 7-10.
2. Baute Pareta Neydis, Castañeda Vargas Esmiraida. Characterization of child malnutrition in the Guatemalan hospital of Poptún. MEDISAN. 2014. 18: 1403-1408.
3. José Antonio Escorcia López. Nutritional status of children under five years of age in 8 communities in the municipality of Santa Rosa del Peñón, León. Nicaragua. 2014. Available at: http://riul.unanleon.edu.ni:8080/jspui/bitstream/123456789/4956/1/230238.pdf .
4. Cuevas-Nasu Lucia, Gaona-Pineda Elsa Berenice, Rodriguez-Ramirez Sonia, Morales-Rouan Maria del Carmen, Gonzalez-Castell Light Dinorah, Garcia-Feregrino Raquel et al. Chronic malnutrition in child population of localities with less than 100 000 inhabitants in Mexico. Public health Méx. 2019. 61: 833-838.
5. Osorio Ana María, Romero Gustavo Alfonso, Bonilla Harold, Aguado LF. Community socioeconomic context and childhood chronic malnutrition in Colombia, Saude magazine. 2018. 52: 73.
6. Delgado Figueroa Carla Beatríz, Mite Zhayra Denisse San Martín, risk factors associated with complications of gastroenteritis in children, University of Guayaquil. 2020. Available at: http:// repositorio .ug.edu.ec/handle/redug/51844 .
7. Avila Curiel Abelardo, Shamah Levy Teresa, Galindo Gómez Carlos, Herlinda Madrigal-Fritsch. child malnutrition in rural Mexico. Salud Publica México. 1998. 35: 658-666.
8. Zarzalejo Zulema, García Magda, María Luisa Alvarez, Millan Andreina. Feeding habits in malnourished children under two years of age in a marginal urban community. An Venez Nutr. 2001. 14: 60-69.
9. Anina del Socorro Noguera Padilla. factors that determine the nutritional status of minors 2 years old who attend the surveillance and promotion program of growth and development of the child, of the health center monimbo, southern area of masaya. 2006.
10. Wisbaum Wendy. Child malnutrition: causes, consequences and strategies for its prevention and treatment. UNICEF. Madrid Spain.
11. Ministry of Health. Regulation 146. Manual of procedures for integrated care of prevalent childhood diseases from 0 to 5 years (ECII). Minsa Magazine. 2018. Available at: http://www.minsa.gob.ni/index.php/repository/Descargas-MINSA/Dirección-General-de-Regulada-Sanitaria/Normas-Protocolos-y-Manuales/Normas-2018/orderb.

12. Ministry of Health. Regulation 029. Food and nutrition standards for pregnant women, postpartum women and children under five years of age. Siteal magazine. 2018. https://siteal.iiep.unesco.org/sites/default/files/sit_accion_files/ni_0022_0.pdf .
13. Garcia Castro Marjurie del Rosario, López Mesis Candida Betsabe. Quality of care in Surveillance, Promotion of Growth and Development in infants under 5 years of age according to users who attend Health Posts, Matagalpa II semester of 2015. Matagalpa. 2016.
14. Latham Michael C. Nutrition and infection, health and disease, human nutrition in the developing world, Ithaca, New York, United States. 2014. Available at: http://www.fao.org/3/w0073s/w0073s07.htm.