

Chi-Square Test to Identify Factors Associated with Health Conditions in Infants of a Colombian Caribbean Root Zone

Y. Burgos-Pereira¹, E.A. Bedoya-Marrugo², L.E. Vargas-Ortiz³, C.A. Severiche-Sierra⁴, D.D. Sierra-Calderon⁵

¹⁻⁵University Foundation Technological Comfenalco, Faculty of Engineering, Comfenalco Technological Process Research Center - CIPTEC. Cartagena de Indias, Colombia.

¹Orcid: 0000-0002-2931-9600, ²Orcid: 0000-0002-2931-9600

³Orcid: 0000-0001-7190-4849, ⁴Orcid: 0000-0002-0113-5594

⁵Orcid: 0000-0002-0113-5594

Abstract

Laboratory and laboratory studies are carried out on 96 children from the mouth of the mouth of Cartagena of Indias, Colombian Caribbean, with a view to establishing a diagnosis with respect to their physical health conditions and the Denver test to evaluate their motor and language. The results showed that 33.33% of the children presented some problems of low weight, parasitoids or overweight, which present an association with the state of organs such as the abdomen, ear, eyes, mouth and skin; As well as with motor and language conditions.

Keywords: Child population, Health conditions, Infections, Obesity.

INTRODUCTION

Significant barriers to access to health care have been identified in a sample of US children with unmet needs where 40% do not have a regular source of preventive care and one in 12 children in need of skilled care experiences problems in obtaining it [1]. Although Are not often commented, some parents consider that being overweight is more acceptable than underweight, to the point that being overweight is not negatively seen by these parents [2]. While other parents are not aware that their child has a nutritional disorder where a 62.4% were perceived incorrectly as normal weight by their parents especially with children from 2 to 6 years [3].

In the last decade, the steady increase in the prevalence of overweight and obesity in young children has created a public health crisis. The National Health and Nutrition Survey in the USA 2009-2010 found that 26.7% of children 2 to 5 years old were overweight or obese [4]. Interventions to address the obesity epidemic can reach most young children are delivered through child care programs, where more than 60% of preschool children in the United States spend an average of 30 hours per week [5]. It has been reported, for example, that helminth infection (one free-living organism in aquatic and terrestrial environments) during pregnancy may affect the motor and cognitive development (due to poor nutrition) children of a year [6]. The financial situation seems to be a strong determinant of malnutrition, infant growth dynamics, participation in and completion of immunization programs, and infant mortality in African countries [7].

Respiratory diseases account for about 25% of all pediatric

consultations, and 10% of these are for asthma. The other major pediatric respiratory diseases, in terms of incidence, are bronchiolitis, acute bronchitis and respiratory infections [8].

Water is a precondition for life, including that of all parasites and other organisms that infect humans. In fact, many infectious diseases are related to water, that is, they depend directly on water bodies for their propagation and transmission or as habitat for intermediate or final hosts [9]. Giardia is considered the most common intestinal parasitic disease in humans throughout the world. In Cuba, this infection has a particularly strong clinical impact on children [10].

Parasitic diseases affecting the central nervous system (CNS) remain an important source of morbidity and mortality worldwide. Neurological, cognitive and mental health problems caused by these parasitic infections affect millions of children and adults in low-income countries and medios [11]. Almost all parasitoids that affect the human brain may be associated with seizures and epilepsy, either by diffuse encephalitis or encephalopathy, or by intracerebral localization of the parasite [12].

The Denver II is a revised version of the Denver Developmental Screening Test developed in 1967. It was standardized in 1989 with 2,096 American children and published in 1992. It is a screening tool used to identify children between birth and six years who have personal problems -social (self-help skills and socialization with others), problems with fine motor (hand-eye coordination and handling of small objects), speech problems (sound production, ability to recognize, understand and use language) and problems In the gross motor (large muscle movements such as sitting, walking, jumping). The Denver II has been used in other countries, such as Georgia, Singapore and Sri Lanka, adapting and normalizing it [13].

Physiologically, the child may have clinical manifestations evidenced as stunted growth, higher brain function deficits, deficits in psychomotor development and alterations in personal social behavior and socioaffective [14]. Handled as standard notes that weight and Height are always compromised, directly proportional to the greater degree of motor disability, being so different the growth between malnourished people and healthy individuals with normal weight and height.

Children with chronic malnutrition experience serious difficulties related to verbal fluency and information processing; nevertheless a better performance in attentional tasks is observed. Being necessary the analysis of psychosocial variables, in addition to other cognitive components [15].

METHODS

Type of study

The type of study performed is exploratory and inferential.

Population

The population is made up of 96 children between 2 and 12 years of age in the town of Cartagena de indias.

Collection of information and analysis of data

Data collection was done through cabinet and laboratory tests for the physical examination of the nasal, auditory, visual, digestive, oral and cutaneous systems of the children, and the Denver test was used to evaluate the motor and language aspects.

Initially, a descriptive study was carried out to identify the health conditions of the children in the Mouthpiece and, after this, the chi-square test of independence between the diagnosis and the state of the different organs was carried out to identify which of these influence the diagnosis of children. Finally, mosaic graphics are drawn between the print and the organs with which an important association was made, to observe the meaning of this association. The analysis of the results is performed in the statistical software 3.3.2.

RESULTS AND DISCUSSION

Of the 96 children considered, 33.3% had a health problem; While 66.7% have a healthy health diagnosis. Eta condition highlights the criticity of the child patient with health problems as identified by Flowers et al. (2016) [1] due to the difficulties of care in urban centers as in the case of children in the insular area of the mouthpiece.

Figure 1 shows the behavior of the diagnosis of children who do not present a good health, according to the results of the exams.

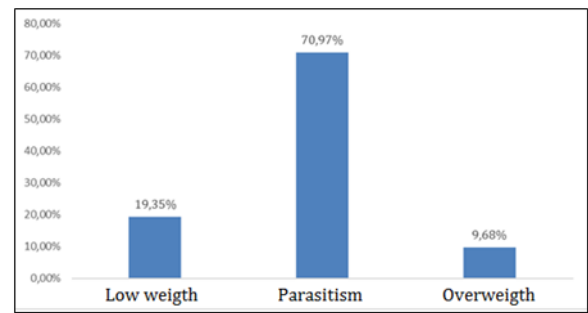


Figure 1: Diagnosis of children not considered healthy

It is observed that the health problems that occur in children are related to food; (70.97%), followed by low weight (19.35%) and problems of overweight (9.68%). This indicates that more control should be exercised in food and beverages consumed by children, in terms of food security, which should also counteract the cultural mistake existing between the community object of the study where it is believed as those analyzed by Syrad et al. (2015) [2] that an overweight child is a healthy child, which is an error that can hardly be corrected considering that such beliefs are difficult to eradicate in the group that continues to refer to the error mentioned.

In addition, the problem in which there is ignorance by the parents about the true nutritional and health status of the infants coinciding with Rietmeijer et al. (2013) [3], where it was not known that the evaluated child presents a nutritional alteration with an incorrect perception about the Normal weight in children.

Next, the results of the chi-square test are presented to identify how the state of different systems of children intervenes in the diagnosis established for them. Table 1 contains the P-values of the chi-square test performed between the diagnosis print and the status of the different factors considered.

Table 1: Chi-square test between the diagnostic impression and children's the Boquilla

Fac tors	Ey es	No se	Ea rt	Mo uth	Abd ome n	Ch est	Sk in	Mo tor	Lang uage
P- val ue	0,0 000	0, 32 6	0, 01 3	0,0 05	0,00 0	0,1 32	0, 00 3	0,0 000	0,00 00

It is observed that, except for the state of the nose, all factors considered influence the diagnosis of children, since they have a significant association with this (p-value <0.05). Next, we show the mosaic charts between the diagnosis and the organs that had an important association with it.

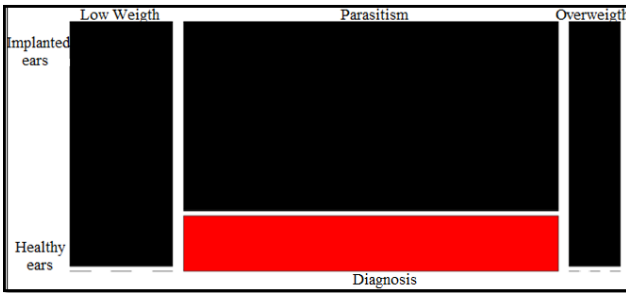


Figure 2: Mosaic chart to see association between impression and appearance of the ears

Figure 2 shows that children with weight problems (whether low or high) have implanted ears; while healthy ears appear in children with parasites. Situation of real concern similar to that detected by Cordero (2014) [15]. Due to digestive, respiratory and genitourinary conditions present in the malnourished child, resulting in skin diseases and non-specific viral processes that are usually associated with pictures of major illness in children. Another related complication is gross motor impairment in infant movements, fine motor for upper extremities and other major damage that can cause acute malnutrition as it is not detected in time. Quino and Barreto (2015) [16] where the functioning of the Child systems become chronic in major events such as growth retardation evidenced in mediocre academic performance and other cognitive, psychomotor and behavioral deficits that can be severely damaged [14,17].

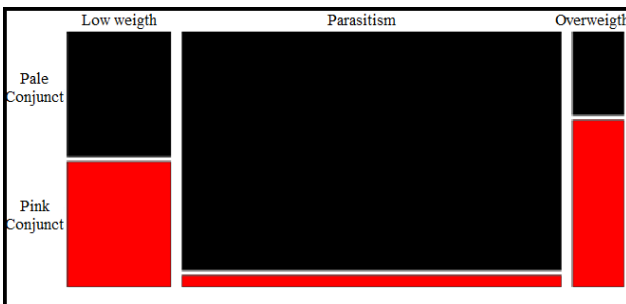


Figure 3: Mosaic chart to observe association between impression and appearance of eyes

According to Figure 2, it is observed that children with parasitosis are characterized by presenting pale conjuncts, relevant as the study by Acevedo et al. (2017) [11] that mentions that certain helminths and the possible absence of symptoms and suggestive signs, derived in the presence of strongyloidiasis and the Schistosomiasis making the intervention of empirical antiparasitic therapy mandatory may be appropriate among patients; While overweight children tend to have pink conjunctiva. With respect to children with low weight, a dominant behavior regarding the color of the conjunctiva is not observed in a similar way to that

induced by Ogden et al. (2012) [4] that perceived high prevalence of overweight children in the USA.

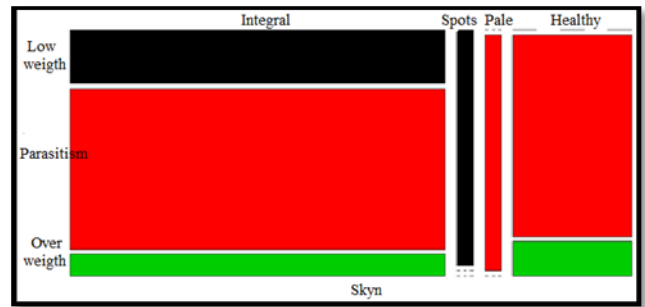


Figure 4: Mosaic chart to see association between print and skin appearance

The behavior of the skin with respect to the diagnosis of Figure 3 shows that children with parasitoids tend to have pale skin; while those who are underweight have spots, overweight children generally do not have skin problems.

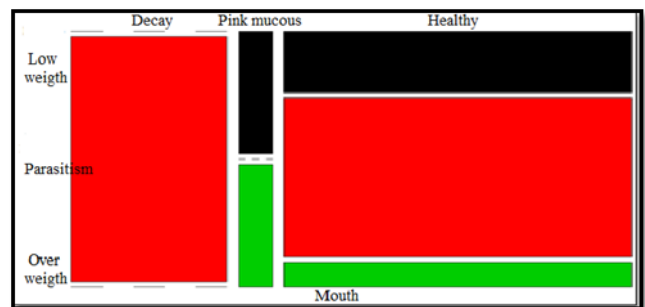


Figure 5: Mosaic chart to observe association between impression and appearance of the mouth

With respect to the behavior of the mouth, according to the diagnosis shows Figure 5, it is observed that children who have caries problems, most of them have a diagnosis of parasitoids; while children with pink mucous membranes generally have weight problems (either high or low).

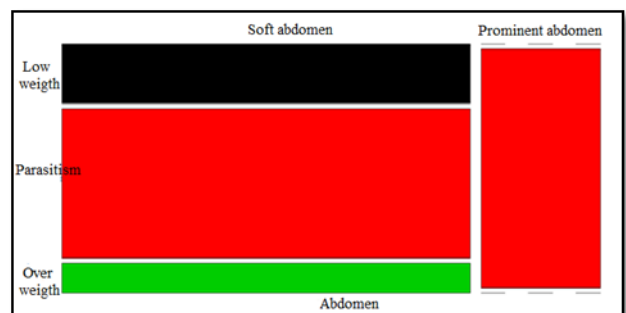


Figure 6: Mosaic chart to observe association between impression and appearance of the abdomen

It is observed that children who suffer from parasitoids have a prominent abdomen; while those with weight problems have a soft abdomen.

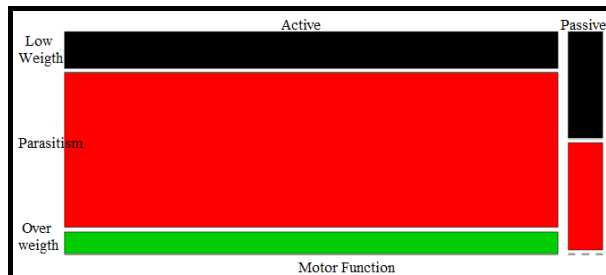


Figure 7: Mosaic chart to observe association between impression motor function

Figure 7 establishes relationships between the motor function and the diagnosis of the children, it is observed that children who present active behavior, present in general problems of parasitoids; while those with low weight problems have are generally motor passive.

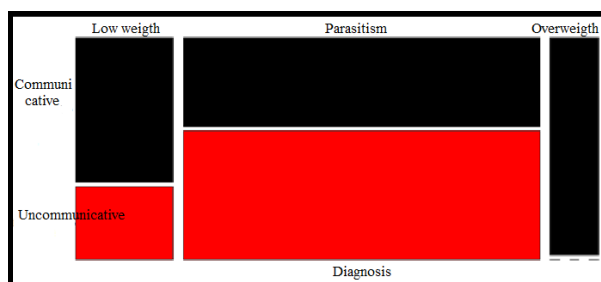


Figure 8: Mosaic chart to see association between print and language

With respect to language, it is necessary that children with parasitoids tend to be uncommunicative; contrary to overweight children, for whom the characteristic that these children are communicative predominates.

CONCLUSION

33.3% of the children considered in the study had a health problem; Being the main problem food security (Parasitoids, underweight and overweight). Nutritional problems of children are associated with factors such as state of the eyes, mouth, abdomen, skin; as well as motor and language conditions. Ears with implants, conjunctiva of pale eyes and skin, caries problems, prominent abdomen and being less active. Children with low weight problems generally have implanted ears, have spots on the skin, pink mucous membranes, soft abdomen and are motorically active and communicative. Finally, children with problems of overweight have more than all ears with implants, pink conjunctivae, healthy skin, pink mucous, soft abdomen.

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