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Artículos de Investigación

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Conocimientos, actitudes y prácticas alimentarias en cuidadores y estado nutricional en lactantes de Ventaquemada, Boyacá, Colombia

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Abstract: Objetive: to determine possible association between the nutritional status of children under two years of age and the level of knowledge, attitudes and practices of caregivers of these infants, in relation to nutritional status, including dietary diversity, in accordance with the groups of foods. **Materials and methods:** there were carried out a observational, analytical, cross-sectional study, which aims to identify the nutritional status according to World Health Organization standards using anthropometric variables, in a sample of 170 infants, simultaneously, was determine the level of knowledge, attitudes and practices of the caregivers, in a rural environment; For this purpose, questionnaires of the United Nations Food and Agriculture Organization, adapted for a rural population of Ventaquemada, Colombia were used. **Results:** there are no significant differences in malnutrition rates; although most caregivers have good knowledge of infant nutrition, this knowledge is not applied, because caregivers perceive that they are in correct practice. **Conclusions:** This finding suggests the development of community intervention studies on beliefs, values, individual and collective emotions, around food practices.

Keywords: nutritional status, caregivers, infant, health knowledge, attitudes, practice, rural areas.

Resumen: Objetivo: determinar la posible asociación entre el estado nutricional de los niños menores de dos años y el nivel de conocimientos, actitudes y prácticas de los cuidadores de estos niños, en relación con el estado nutricional, incluida la diversidad dietética, de acuerdo con los grupos de alimentos. **Materiales y métodos:** se llevó a cabo un estudio observacional, analítico, transversal, que tiene como objetivo identificar el estado nutricional según los estándares de la Organización Mundial de la Salud, utilizando variables antropométricas en una muestra de 170 lactantes; al mismo tiempo que se determinó el nivel de conocimiento, actitudes y prácticas de los cuidadores, en un entorno rural. Para este propósito, se utilizaron cuestionarios de la Organización de las Naciones Unidas para la Agricultura y la Alimentación, adaptados para una población

rural de Ventaquemada, Colombia. **Resultados**: no hay diferencias significativas en las tasas de desnutrición; aunque la mayoría de los cuidadores tienen un buen conocimiento de la nutrición infantil, este conocimiento no se aplica, porque los cuidadores perciben que están en la práctica correcta. **Conclusiones**: este hallazgo sugiere el desarrollo de estudios de intervención comunitaria sobre creencias, valores, emociones individuales y colectivas, en torno a las prácticas alimentarias.

Palabras clave: estado nutricional, cuidadores, lactante, conocimientos, actitudes y práctica en salud, medio rural.

Introduction

The ENCUESTA NACIONAL DE LA SITUACION NUTRICIONAL EN COLOMBIA (ENSIN, 2015) [1], reported 10.8% of infants and children (0 to 5 years old) with short tall, a measure higher than the goal of 8% established in the Millennium Development Goals (MDGs); there was expected to reduce acute malnutrition to 1.3% but only 2.3% was reached for the same segment of the population. Preventing acute malnutrition means to reduce the risk of infant mortality, while preventing chronic malnutrition can reduce the risk of permanent disability. The achievement of these two purposes is considered possible through food security programs, applied preferentially in the first thousand days of development, counted from conception. Consolidate these processes, improves the perspective of perfect neurological development and, integral development of the future people, as a generating base of social transformations [2].

During the first periods of childhood, malnutrition, has a character of severity which significantly affects the consolidation of brain structures, whose damage can lead to metabolic and functional changes irreversible. The problem is not only a deficiency phenomenon, its determinants are located in a social, economic and cultural environment that must necessarily be considered when designing health interventions [2].

Colombian government, in the Plan Nacional de Desarrollo 2006-2010, has endeavored to prioritize the design and implementation of a food and nutrition security policy, as a strategy aimed at achieving, in principle, guarantee of fundamental rights, especially of infants; jointly with the improvement of economic and social environments, increasing the volume and capacity of human capital, establishing regional conditions of development and peace, strengthening of government institutions and reducing poverty. To this goal, social promotion interventions and social risk management have been planned as a strategy [3].

Because these reasons, it is considered that, in addition to the physical availability of nutrients, it is essential that communities have an acceptable level of knowledge about the composition and importance of nutrition characteristics of food available in their environment; improve attitudes towards hygiene, self-care, good health and daily practices leading to a healthy diet [4].

Various experiences in which the focus of public policies is aimed to the development of designed interventions, from the results of

anthropometric diagnoses, without link correlation with educational, social and cultural determinants, have been little or nothing effective. Consequently, for several years some institutions such as FAO, WHO, UNICEF, have been developing instruments that allow to quantify with high precision, Knowledge, Attitudes and Practices (KAP) closely linked to nutrition, in order to optimize the applicability, validity, standardization and comparability between different studies [4]. The present study, aims to determine the possible association between the nutritional status of children under two years and the KAP of adult caregivers, including dietary diversity according with the food groups.

Materials and methods

It was designed an analytical cross-sectional study to identify, in an exploratory way, possible association between the knowledge, attitudes and practices in nutrition of the caregivers, with the nutritional status of infants under two years of age; a structured questionnaire was applied during the months of August and September of 2017, complementing the diagnostic phase of the project "Community intervention for the strengthening of nutrition and feeding in infants under two years living at the Municipality of Ventaquemada" carried out between March 2017 and June 2018.

Population and sample. It was considered as universe, children under 24 months of age, living in rural areas of the Cundiboyacense highlands. The target population consisted of children under two years of age living in the rural areas of the municipality of Ventaquemada, Boyacá. Among the infants and caregivers, beneficiaries from 19 service units of the program: "Child development in a family environment in the rural area of the municipality of Ventaquemada", in charge of the operator for Family Welfare, "Fundación TuCrecer", 170 caregivers of infants aged between 1 and 23 months, were surveyed; Sampling was carried out using sequential by convenience inclusion technique. Age, residence place and caregiver condition, being beneficiary of the program was the unique inclusion criteria. There weren't exclusion criteria.

Anthropometric measurement tools. For the assess of the nutritional status, who's child growth patterns and values, for infants under two years of age were used, weight – height (W / H), height - age (H / A), weight – age (W / A), body mass index (BMI), cephalic circumference for age (HC), and middle arm circumference (AC), accepted by the "Ministerio de Salud" through resolution 2465 of 2016 [5].

Body Height of the infants was measured by using a portable tally-meter for infants, model SECA 210, with a measuring range since 10 cm to 99 cm with 5 mm divisions; that meets medical-health criteria of the European Community (EC) according to directive 93/42 / EC, with a mean error of +/- 5 mm. The weight was measured with a mechanical scale of suspension with circular scale for ambulatory weighing brand SECA model 310, with load capacity of up to 25 Kg, with intervals of 50 g, function of zero adjustment and mobile measurement; meets with

medical-sanitary criteria of the European Community (EC) according to directive 93/42 / EC [6].

To estimate the level of Knowledge, attitudes and practices (KAP), the KAP Model Nutrition Questionnaire developed by FAO was used, following rigorously, the steps proposed for the manual's application [4,7]; Of the 13 modules which conforms the questionnaire, modules 1 and 2 were used for infants under 6 months and children aged between 6 and 23 months, respectively. The questionnaire modules were in-field tested in Cambodia, Malawi, Mexico and El Salvador,[4] to ensure their validity, readability, easily of administration and certainty that they do not entail excessive difficulty for the respondents; however, was taken into account indications of FAO's manual [4,7], referred to the pre-test of the survey through the realization of a focal group exploration, with 15 people among officials and beneficiary users of the "Fundación TuCrecer", where they were nutritionist, psycho-pedagogues, social worker, psychologist, mothers of children beneficiaries of the child development program in a family environment, living in another municipality; the methodology defined by the FAO was carried out and the main recommendations were changes in the names of the foods of the region, elimination of names of food and terms not known in the context; as for the group of interviewers, there were no difficulties in understanding the questions after making the adjustments recommended by the focal group [4].

The feeding questionnaire for infants under 6 months consists of a sociodemographic characterization area, 11 knowledge questions, 7 attitudes questions, 4 sections to determine the feeding practice to the infant less than 6 months with breast milk. The feeding questionnaire for infants aged 6 to 23 months has a demographic characterization area, 7 knowledge questions, 8 attitudes items, and 1 item for continuous breastfeeding practice, a food diversity section asking about the consumption of 7 feeding groups, other foods and frequency of meals.

To interpret and analyze the results of the KAP-FAO questionnaire, the manual defines: 1) in the knowledge area, opened questions, with previously defined response options; 2) in terms of attitudes, they are measured by asking respondents to judge whether they are positively or negatively inclined towards a health or nutrition problem; an ideal or desired practice related to nutrition; acceptance of nutritional recommendations or dietary guidelines based on food, and, finally, food preferences or food taboos. 3) in the area of practices related to nutrition in terms of dietary diversity, intake and frequency of specific foods and specific observable behaviors; the dietary diversity of infants is evaluated through a questionnaire of seven food groups consumed the day before the survey was applied [8,9].

With the collected data, a database was assembled in the statistical package IBM-SPSS version 22.0 (IBM Corp.); a descriptive analysis was carried out assessing account statistical measures of central tendency for variables measured in numeric scale, frequencies and percentages for variables measured in nominal scale; the results are presented summarized

in contingency tables; For the records and analysis of anthropometric measurements, it was used the ANTHRO-OMS program, which allows see, the analysis of the nutritional status by Z score for each defined parameter: W/S, S/A, W/A, BMI, HP, PPMB. When to compare groups was needy, hypothesis testing was carried out with Student's t-test and Chi-square for categorical variables. For bivariate association analysis, it was estimated Odds Ratio (OR) and statistical significance were calculated with the Mantel-Hansel test; there was established significance limit $p \leq 0.05$.

Ethical Issues. Because the protocol doesn´t involve invasive procedures, the study was classified as without-risk, in accordance with the provisions of Resolution 8430/93. Eligible people were informed about the study's purpose and methodology and asked to sign an informed consent. The protocol was previously approved by the Bioethics Committee in Institutional Research. All times, the research team took care to preserve the information's chain of custody, as well as the principles of beneficence and autonomy for the participants; there were no refusals or desertions during the process. All participants had access to the result and corresponding explanation about the results of their individual evaluation [10].

Results

170 infants were evaluated, of which 19.4% (n=33), were under 6 months and 80.6% (n=137), were between 6 and 23 months age; 53.5% were female (n=91) and 46.5% male (n=79); caregivers were 97.6% mothers (n=166); 0.6% (n=1) father; 1.8% of grandmothers (n=3); caregivers were between 15-65 years old, with mean age of 25,5 (Standard Deviation=8.1); 69.4% of caregivers (n=118) had 1-2 children; 27.1% (n=46) between 3-4 children; 2.4% (n=4), between 5-6; 1.2% (n=2) between 7-10. Related to educational level of the caregivers: without any education, 0.6% (n=1); Basic school, 25.9% (n=44); high school 26.5% (n=96); technical level 13.5% (n=23); university incomplete 1.8% (n=3) and university complete 1.8% (n=3). Table 1 shows the diagnosis of nutritional status, established by anthropometry.

Weight indicator for the stature (w/s)	n	%
Adequate weight for the stature	111	65.3
Risk of acute Malnutrition	11	6.5
Acute-Moderate Malnutrition	4	2.4
Risk of overweight	35	20.6
Overweight	6	3.5
Obesity	3	1.8
Stature indicator for age (s/a)	**n**	**%**
Adequate stature for age	105	61.8
Risk of small stature	47	27.6
Small stature for age or stature delay	18	10.6
Indicator body mass index (bmi) for age	**n**	**%**
Risk of overweight	37	21.8
Overweight	9	5.3
Obesity	2	1.2
Do Not applies for age (Verify with W/S)	122	71.8
Indicator weight for age (w/a)	**n**	**%**
Adequate weight for age	124	72.9
Risk of global malnutrition	23	13.5
Global Malnutrition	5	2.9
Do not applies (Verify with W/S)	18	10.6
Indicator cephalic circumference for age	**n**	**%**
Normal	158	92.9
Risk factor for neuro-development +2	4	2.4
Risk factor for neuro-development -2	8	4.7

Table 1
Nutritional status of infants between 0-24 months of age
Study Database. Own elaboration

With respect to attitudes, 93.9% (n=31) of caregivers of children under 6 months perceive exclusive breastfeeding as beneficial, 81.8% (n=27) believe that breastfeeding infants are not difficult to breastfeed when they are 0 to 6 months age, exclusively, 12.1% (n=4) consider it difficult; 27.3% (n=9) believe that it is not good to breastfeed at free demand and 69.7% (n=23) believe it is good, 90.9% (n=30) does not consider difficult to breastfeed at free demand ; regarding trust, 90.9% (n=30) feel secure when breastfeeding their children; but at the time of expressing and preserving breast milk, 57.6% (n=19) feel unsecure and 57.6% (n=19) consider that children consume a sufficient amount of breast milk. Table 2 shows the results on knowledge of caregivers of children of less than 6 months.

Item	Freq	%
1. Do you know how a newborn should be fed?	33	100
2. Do you know the meaning of exclusive breastfeeding?	25	75.8
3. Do you know what exclusive breastfeeding means?	24	72.7
3. Do you know how long it is recommended to give only breast milk?	30	90.9
4. Do you know why it is recommended to give only breast milk during the first six months of age?	21	63.6
5. Do you know how often you should feed an infant under six months of age with breast milk?	16	48.5
6. Do you know what helps the infant to receive only breast milk during the first six months of life?	31	93.9
7. Do you know what benefits the mother gets if she gives her baby exclusive breast milk for six months?	22	66.7
8. How can a mother keep having milk?	27	81.8
9. How could a mother continue to feed her baby exclusively with breast milk?	31	93.9
10. Do you know what a mother should do if her milk does not flow?	10	30.3
11. Do you know how breast milk can be stored?	27	81.8

Table 2
Frequency and percentage of caregivers who have adequate knowledge about feeding in children under 6 months
Study Database. Own elaboration

51.5% (n = 17) of children less than 6 months age, were being exclusively breastfed; those who do not receive exclusive breastfeeding, 18% (n=6), receive water, 24.2% (n=8), formulated milk, 6.1% (n=2) canned or fresh milk, 15.2% (n=5) receive juice, 12.1% (n=4), clear broth; 39.4% (n=13) receive other foods, among which are aromatic beverages, yogurt and oatmeal. Breastfeeding continues until one year of age in 80.8% (n=42) and up to two years in 61.2% (n=52). Table 3 shows the caregivers' knowledge about diet diversity and ways to enrich baby food for infants aged 6-23 months. Overall, it is concluded that 83.2% (n=114) knows how to enrich the diet, while 16.8% (n=23) have deficiencies in this regard.

They know ways to enrich baby food by adding:	SI		NO	
	Freq	%	Freq	%
Food of animal origin (meat, chicken, fish, liver / giblets, eggs, etc.)	61	44.5	76	55.5
legumes (peas, chickpeas, beans, lentils), sunflower seeds, peanuts, soybeans	47	34.3	90	65.7
Fruits and vegetables rich in Vitamin A (carrot, yellow squash, mango, papaya, etc.)	98	71.5	39	28.5
Green leafy vegetables (spinach, for example)	49	35.8	88	64.2
High energy foods: oil, butter / shortening	18	13.1	119	86.9
Others	15	10.9	12,2	89.1
Don't know	15	10.9	122	89.1

Table 3
Study Database. Own elaboration

Regarding knowledge of caregivers on complementary feeding for children between 6-23 months, 54% (n=69), does not know the recommended age for continuous breastfeeding, 89.1% (n=122) knows the age of onset of Complementary feeding, 81% (n=111) recognizes that breast milk is not enough, 78.8% (n=108) chose the thick porridge, considering 38% (n=52), that the porridge is more nutritious.

Referred to the motivation to eat towards children: 57.4% (n=75) makes faces, plays, or laughs, 24.8% (n=34) talks to them and 14.6% (n=20) Provides attention during meals. 83.2% (n=114) of the caregivers know how to enrich the compotes and when to onset complementary feeding.

Attitudes related to practices for adequate nutrition in children from 6-23 months of age: 90.5% (n=124) feel safe when preparing food; 92.7% (n=127) perceive food diversity as beneficial; 16.8% (n=23) considers it

difficult to provide food diversity; 92.7% (n=127) consider that feeding frequently is good; 86.9% (n=119) did not perceive any barrier, 78.1% (n=107) considered that continuing breastfeeding after six months is beneficial; 17.5% (n=24) considers that it is difficult, in terms of the perception of the feeding frequency; 86.1% (n=118) considers that it is sufficient; 10.2% (n=14) very frequent and 3.6% (n=5) uncommon.

Adequate food diversity, defined as the supply of four or more food groups in a day, is met for the group of children between 6 and 23 months by 92.8% (n=128), in descending order, the distribution by group of food is: based on grains 95.6%, meats (preferably res 84.7% and viscera 75.9%); roots and tubers 77.4%; other foods rich in sugar 76.6%; legumes - nuts and fruits - vegetables rich in vitamins share the same percentage with 73.7%; dairy 73%; other fruits and vegetables 71.5%; and finally eggs with 59.1%. The foods that most frequently (1 to 3 times a day) were given the day before were yogurt 61.3% (n=84), egg 59.9% (n=82), milk (canned, powder or fresh) 59.1% (n=81).

According to the recommendations of the WHO, the frequency of servings for children fed with breast milk are: 2-3 times for babies of 6 to 8 months breast-fed, 3-4 times for infants of 9 to 23 months breast-fed. For children not breastfed: 4 times for children from 6 to 24 months (10). In the studied sample it was evidenced that 52.9% (n=9) of children between 6-8 months consume the recommended and 60.8% of children between 9 and 23 months consume more than recommended (Table 4).

Age	Less than recommended	Recommended	More than recommended	Total
	Freq (%)	Freq (%)	Freq (%)	
6-8 Months age	6 (35.3)	9 (52.9)	2 (11.8)	17
9-23 Months age	21 (17.5)	26 (21.7)	73 (60.8)	120

Table 4
Classification of ration frequency according to WHO recommendations
Study Database. Own elaboration

In an exploratory way, a search was made for factors that could be identified as possible determinants of some favorable or unfavorable outcomes for children's adequate breastfeeding and feeding; the strength of association, measured as prevalence patio (PR) was significant for some exposures in the group aged 6-23 months, as illustrated in Table 5.

Exposure	Outcome					PR*	CI+ (95%)		P**
Continuous breastfeeding after 6 months age?	Consume less than recommended			Consume the recommended					
	No	Freq (%)		Freq (%)		3.53	1.12	11.1	0.018
		24 (25.5)		71 (74.74)					
	Yes	3 (7.14)		39 (92.86)					
Sex	Overweight BMI			Normal weight BMI		1.98	1.09	3.61	0.011
	Female	22 (34.92)		41 (65.08)					
	Male	13 (17.57)		61 (82.43)					
Knows reasons for starting supplementary feeding?	At risk or acute Malnutrition (W/S)			Normal W/S		2.94	1.05	8.21	0.031
	No	5	20.83	19	79.17				
	Yes	8	7.08	105	92.92				
Carbohydrates Consumption	Protein-Energy Malnutrition. Arm circumference			Normal Arm Circumference		8.73	2.10	36.1	0.016
	No	2 (33.3)		4 (66.67)					
	Yes	5 (3.82)		126 (96.18)					
Formulated-Milk Consumption	At risk or acute Malnutrition W/S			Normal W/S		1.68	1.12	2.53	0.011
	Yes	18 (56.3)		14 (43.7)					
	No	35 (33.3)		70 (66.6)					
Yogurt's consumption	Global Malnutrition W/S			Normal W/S		2.24	1.01	4.96	0.024
	No	12 (23.5)		39 (76.5)					
	Yes	9 (10.5)		77 (89.5)					
Knows reasons for starting supplementary feeding?	Yes, continuous breastfeeding after 6 months age			Not continuous breastfeeding after 6 months age		0.53	0.32	0.87	0.015
	Yes	31(27.4)		82 (72.6)					
	No	12 (50)		12 (50)					
PR*=Prevalence Ratio; CI+=Confidence Interval; p**= Mid p, exact.									

Table 5
Associated variables with statistical significance (Prevalence Ratios)
Study Database. Own elaboration

Discussion

According with information registered in the ENSIN 2015, the prevalence of acute malnutrition is slightly higher than that of the Colombia; the short height rate is similar to that of the country, but slightly higher than the eastern region that includes Boyacá. It is striking that the prevalence of children with overweight, is located at an intermediate point between the records of the region and the country. However, it is important to highlight that the malnutrition, in any of its forms, correlates with acute diseases, limitation of development and infant mortality that perpetuate poverty. A fundamental element that would allow reducing poverty and improving health conditions, could be the effective intervention on the level of knowledge, practices and attitudes about food and nutrition, using methodologies that guarantee endure and sustainable changes.

Results of prevalence of exclusive breastfeeding in children under six months, largely reflects a cultural tradition that stands out, since it is 10 percentage points higher than the reports of ENSIN 2015, of 41.3% for the eastern region; In addition, it surpasses the results for Colombia and the world by almost 20 points; thus, reaching the goals proposed by the WHO [11]. In relation to continuous breastfeeding up to 12 months, in this study, exceeds the country's statistics by almost 30 percentage points [1]; the support of breastfeeding up to two years is 61.2% in the study in contrast to 31.6% for Colombia [1], while in countries such as Guatemala in 2013 it reached only 6.25% [12]. It should be highlighted

the caregivers, who are mothers, with a high rate of dedication to domestic tasks and low family income, which limits the purchase of other milks and stimulates breastfeeding.

Knowledge

Learning, able to modifying behavior, also recognizes in the community a source capable of generating its own transformation. Since behavioral changes are voluntary, it is necessary to start from planned processes for understanding, motivation and development of expertise, as a starting point. Then, it is so important, to evaluate the basic knowledge in nutrition. In this study it was emphasized that for 90.9% the exclusive breastfeeding period from birth to 6 months of age matters; 93.9% know the benefits of breastfeeding; moreover, 66.7% know, in addition, the benefits of breastfeeding for the mother. In other studies, it is reported that all mothers know the concept of exclusive breastfeeding [11]; in India, 92.5% of good knowledge about breastfeeding was reported [13]; In Egypt, knowledge of the benefits of breast milk in protecting children against diseases was significant, while it was known that about 66% of caregivers knew these advantages [14].

Regarding accessibility difficulties, 27.3% of caregivers would seek help from a health professional in case of presenting a problem with breastfeeding, which contrasts with what was reported in Argentina, where 80% of caregivers would go a doctor [15], and a study from Ghana, where 90% of caregivers would go to the health center [16].

Attitudes

Experiences of the caregivers, leads to react to the complex situations that seen on a daily, basis regarding the nutrition of their children. Its assessment and modification towards systematic and appropriate actions are, limited and difficult to interpret due to the variability of results. With regard to positive attitudes, such as the free demand for breast milk, the benefits of exclusive breastfeeding and the ease of breastfeeding, the favorability data obtained in the present study are variable and range from 72 to 93.9 %. Other studies report: a positive attitude towards breastfeeding of 77.5% [13] and in another Colombian study, between 90-97.9% [17]. Favorable attitudes in the preparation and benefits of dietary diversity showed percentages higher than 90% in the caregivers, while in Iran, the favorable attitudes of the caregivers present a variability between 45.2 and 99.8% [18]. Generally, mothers from rural areas, who breastfeed, feel convinced of their breastfeeding. There is consensus that exclusive breastfeeding should be at least until six months of age, as a key element that provides maternal benefits, in the integral development of the child and as an effective tool to reduce poverty, by considerably reducing the risk of infections, chronic diseases, disability and mortality.

Practices

In the Indian study, only 36.25% of mothers gave exclusive breastfeeding until six months [13], compared to 41% of mothers in Guatemala, these results being lower than the present study which found 51.5%; Higher data were found in advanced studies in Cali, Colombia 66.7% [19], Ghana 66% [20], Girón, Colombia 72% [17]. However,

these studies do not reach the goal proposed by the WHO of 85% [11], which makes manifest the need to increase interdisciplinary efforts to reduce the deficiency. In some cases, it is mentioned that, when mothers must leave, caregivers are prone to administer another type of food. It is noteworthy that most caregivers are unaware of the techniques of storage and preservation of breast milk.

Transition between exclusive breastfeeding and start of complementary feeding is a complex process, influenced by cultural, economic and mediatic phenomena, which generate concern and difficulty in decision-making. Diversity was found in the adequate diet (more than four food groups a day) in 92.8%, with a predominance of red meat, similar to the study in Iran [18], and superior to other studies consulted where 60% of families with a diversity of acceptable or adequate diet [20, 21]. Regarding the frequency of meals per day, in the research carried out, a significant proportion of children between 6-23 months age, consume more than the recommendations established by WHO; However, when asking about the perception of the caregiver in relation to the daily consumption of the child, for them, it is enough what they consume. The food diversity qualifies the variety of foods and indirectly allows to evaluate the amplitude of the spectrum of nutrients administered in the diet [22].

Draws attention, that barely a third of caregivers in the present study maintain continuous breastfeeding practice up to two years, less than the national rate of continuous breastfeeding until two years, although higher than the national rate in terms of breastfeeding continues up to 1 year, according to the ENSIN 2015.

The results of this study confirm the predictive value of the arm circumference, correlated with weight for height, as an indicator of risk in children with severe acute malnutrition, since it offers greater precision with respect to the estimation of caloric reserves and muscle mass [23]; The present study, in fact, evidences a solid association between low calorie consumption and a small arm circumference [24].

In the reviewed literature, it is not possible to clarify the benefits of the level of schooling of caregivers, in relation to correct complementary feeding techniques, since in some studies it is stated that levels of secondary education associated with a nutritional educational supplied to caregivers, don't influences adequate complementary nutrition [25]. On the other hand, intervention studies with education to mothers show positive impact [25]; Even so, it is important to develop strategies that improve the knowledge on the quality and quantity of diets by caregivers, as the studies suggest [25,26].

In another sense, the rural practice of maintaining continuous breastfeeding, may constitutes a risk for infants older than 6 months, possibly because caregivers believe that it alone is sufficient; According to the WHO suggestions and some studies it is established that breastfeeding should be accompanied by complementary feeding until two years of age and be administered to demand [11,27], it is important to consider the child's age, to guarantee that the portions of food are

those indicated for their age since breastfeeding can contribute more than half of the total energy requirements in a child, up to 12 months of age; while between 12-24 months, complementary feeding represents more than half of the child's total energy requirements; it can be seen that breastfeeding will continue to cover up to one third of the energy needed for the child but it is necessary to include other high quality nutrients in the diet, since appropriate complementary feeding practices could mean an additional benefit of 6% in the reduction of mortality in children less than five years age [11].

This study identifies that the consumption of formulated milk is an linked factor for a child to be at risk or develop Acute Malnutrition; in relation to other studies, the same association is not found in all of them, however, obesity can be 3 times more likely in children who receive formulated milk for more than 6 months [28, 29]; feeding with formulated milk is related to the incidence of diarrhea in babies [28]; therefore the consumption of formulated milk contributes in the genesis of malnutrition from its two extremes: by excess and by defect.

With respect to sex, in the study it is identified that female has a higher risk of developing obesity, a result similar to those found in studies conducted in Colombia [29], where, through the performance of multivariate prediction models, it was defined that being a female, is one of the social determinants for obesity; similar results were reported in a study carried out in Peru where being a woman between the ages of 5-9 years, adult and older adult is a social determinant for the development of overweight and obesity [30].

In the found literature, the consumption of yogurt shows important results in terms of its usefulness in pathologies such as chronic diarrhea and as an option against cow's milk allergy [31], however there is poor information about a direct link between protection against malnutrition and consumption of yogurt, a fact that was found in the present study.

Because of the cross-sectional design used, it is evident that the results of this study suggest only a look of a causal association between the nutritional culture of the children's caregivers and the degree of development and growth of the babies. However, it should be considered as a strength that this work opens the door to design more rigorous studies on this phenomenon and the alternatives that efficiently contribute to improve the capacity of the caregivers.

Conclusions

Ignorance about the reasons to initiate the regulated supply of supplementary food, such as carbohydrates and yogurt, contribute to the probability of nutritional disorders such as overweight and, on other occasions, malnutrition, ignorance that suggests be a risk factor, whereas continuity in breastfeeding for more than six months, a cultural custom, is seen as a protective factor. The female sex is shown as a non-modifiable risk factor for the occurrence of overweight.

It is evident in the evaluation of the nutritional status, the persistence of indicators of malnutrition without major changes, that generate a tendency towards the reduction of these events; It is highlighted that despite the government's efforts to develop strategies that try to protect the infant in the family environment, together with the intervention of multidisciplinary teams, no relevant impact results have yet been consolidated in the population. It is important to think about re-signifying the strategies developed and the existing public policies.

The study identified that the majority of caregivers know basic elements of infant nutrition and although they have the knowledge, a significant proportion does not carry them out, because they perceive, that they are doing its duty properly. This finding can be a fundamental element for the development of interventions that deepen more in culture, beliefs, values, individual and collective emotions that are generated around food practices.

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