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RESEARCH ARTICLE

Study of knowledge, attitudes and practices of complementary feeding among caregivers of children from 6 to 23 months of age from a rural community of Ecuador: A cross-sectional study

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KEYWORDS

Eating Habits;
Nutritional Status;
Malnutrition;
Children;
Complementary Feeding.

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ABSTRACT

Introduction: Nutritional deficiency due to an unbalanced diet is one of the most important factors contributing to stunting or the development of comorbidities in infants. Poverty, lack of knowledge about complementary feeding (CF) schedules, or lack of information accessibility are among the major causes that affect nutritional status. Our objective was to investigate the association of caregivers' knowledges, attitudes, and CF practices with the nutritional status of children aged 6 to 23 months attending the Camilo Ponce Enriquez Health Center from October to December 2022.

Methodology: An observational study was conducted. Information from caregivers of 137 children aged from 6 to 23 months (mean age 12.66±5.00, 51.82% female) was analyzed. The data collection process was carried out through the application of the KAP survey of the Food and Agriculture Organization of the United Nations (FAO), which first includes a socio-demographic survey consisting of 10 questions, 7 of which obtain information from the caregiver and 3 oriented to obtain data from the child. Informed consensus was obtained previous to the survey application. Information on the nutritional status was obtained from the medical history data provided by the nursing department. Pearson's Chi-squared test was applied to establish whether or not there was an association between the nutritional variables.

Results: 55.96% of caregivers had appropriate CF practices. Meanwhile, 77.89% and 77.55% had adequate knowledge and attitudes about CF. A statistically significant association ($p<0.05$) was found between nutritional diagnosis and maternal CF knowledge, attitudes, and practices.

Conclusions: The knowledge, attitudes, and practices of the target population reached a moderate level, laying the foundation for the study of risk factors, as well as educational strategies to prevent malnutrition.

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Estudio de conocimientos, actitudes y prácticas de alimentación complementaria entre cuidadores de niños de 6 a 23 meses de edad de una comunidad rural del Ecuador: Un estudio transversal

PALABRAS CLAVE

Hábitos Alimentarios;

Estado Nutricional;

Desnutrición;

Niños;

Alimentación Complementaria.

RESUMEN

Introducción: La deficiencia nutricional debida a una dieta desequilibrada es uno de los factores más importantes que contribuyen al retraso del crecimiento en lactantes. La pobreza, la falta de conocimiento o la falta de accesibilidad a la información se encuentran entre las principales causas que afectan el estado nutricional. Nuestro objetivo fue investigar la asociación de los conocimientos, actitudes y prácticas de alimentación complementaria (AC) de los cuidadores con el estado nutricional de niños de 6 a 23 meses que asisten al Centro de Salud Camilo Ponce Enríquez de octubre a diciembre de 2022.

Metodología: Se realizó un estudio observacional. Se analizó la información de los cuidadores de 137 niños de 6 a 23 meses (edad media 12,66±5,00, 51,82% mujeres). La recolección de datos se realizó mediante la aplicación de la encuesta de conocimientos, actitudes y prácticas de alimentación complementaria (CAP) de la Organización de las Naciones Unidas para la Alimentación y la Agricultura (FAO), que incluye en primer lugar una encuesta sociodemográfica compuesta por 10 preguntas, 7 de las cuales obtienen información del cuidador y 3 orientadas a obtener datos del niño. Se obtuvo consenso informado previo a la aplicación de la encuesta. La información sobre el estado nutricional se obtuvo de la historia clínica del departamento de enfermería. Se aplicó la prueba Chi-cuadrado de Pearson para establecer si existía o no asociación entre las variables nutricionales.

Resultados: El 55,96% de los cuidadores tuvieron prácticas adecuadas de (AC). Mientras tanto, el 77,89% y el 77,55% tenían conocimientos y actitudes adecuadas sobre AC. Se encontró asociación estadísticamente significativa ($p<0,05$) entre el diagnóstico nutricional y los conocimientos, actitudes y prácticas maternas en materia de AC.

Conclusiones: Los conocimientos, actitudes y prácticas de la población objetivo alcanzaron un nivel moderado, sentando las bases para el estudio de factores de riesgo, así como estrategias educativas para prevenir la desnutrición.

KEY MESSAGES

1. A significantly high prevalence of child malnutrition was found in our sample.
2. The levels of knowledge, attitudes and practices regarding complementary feeding were identified as low to moderate and had a statistical significance association with the nutritional status of the children.
3. There is much work to be done in terms of policy and educational strategies to address this high prevalence of malnutrition and low levels of complementary feeding practices.

CITATION

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INTRODUCTION

Complementary feeding (CF) is a fundamental process and a critical stage that can affect the health, growth and development of the child[1,2]. CF practices are influenced by food accessibility, including food availability, affordability and acceptability, and by the care and hygiene practices of caregivers[3]. Breastfeeding and CF practices vary due to mother and infant's demands in addition to cultural, educational, and economic factors[4]. Sociocultural factors such as public beliefs and cultural norms are key determinants of breastfeeding initiation and duration, and CF practices[5]. As 'caregivers', mothers are responsible for preparing the food and feeding the food to the children[6]. Caregivers must pay special attention to the choices and quality of foods offered to meet nutritional needs of the growing child[7]. The mother's guidance and care are fundamental when putting her knowledge into practice to feed the baby and provide adequate nutrition[8].

Current recommendations for Infant and Young Child Feeding (IYCF) practices include exclusive breastfeeding of infants under 6 months and then providing nutritionally adequate and safe complementary foods at sufficient frequency while breastfeeding up to 2 years of age[9]. After 6 months, the mother's milk is not enough to fully cover the nutritional needs of the infant, so the CF starts to gain importance[10]. Proper CF is important in filling energy and nutrient gaps to continue optimal growth, development and maintain health beyond six months[11]. Complementary foods should be timely, adequate, safe, and properly fed to meet the infants' nutritional needs[12]. At this stage, encouraging healthy eating behavior development early in life is a way to prevent the onset of diet-related diseases, and is one of the earliest windows for modifying chronic disease risk[13,14,15].

Access to a variety of affordable and nutritious complementary foods may be challenging for households of limited means. Socioeconomic status has been recognized as a determinant of health[16].

Inappropriate feeding practices are a major cause of the onset of malnutrition in young children[17]. Sub-optimal CF practices of infants and young children persist due to different factors, which include knowledge, attitude, and self-efficacy of index mothers[18]. Nutritionally unbalanced diets, improper timing of start and content of CF, anemia, undernutrition, indoor pollution due to tobacco smoking and use of coal and wood for cooking food and lack of vaccinations are important risk factors for childhood pneumonia[19].

CF period have positive short- and long-term effects on optimal growth, body composition, neurodevelopment, healthy food preferences, and gut microbiota composition and function[20,21,22]. CF methods have the potential to not only ensure a diet of nutritional adequacy but also promote optimal food-related behaviors and skills[23].

Considering the child population as a vulnerable group, the age chosen for the study is key to carry out an intervention and provide a comprehensive prevention program to reduce the level of malnutrition.

The canton Camilo Ponce Enriquez, is a town belonging to the province of Azuay, with approximately 21,998 inhabitants according to statistics published by the Institute of Statistics and Census of Ecuador (INEC) of the census results in 2010[24]. It has a basic community health center, which serves not only the population of the canton, but also places surrounding it. Being a rural parish, it has a situation of greater food and nutritional vulnerability to which children are exposed, with a greater tendency to develop malnutrition, coupled with the lack of information on proper feeding practices by mothers.

For this reason, our objective was to investigate the association of caregivers' knowledges, attitudes, and complementary feeding practices with the nutritional status of children aged 6 to 23 months attending the Camilo Ponce Enriquez Health Center from October to December 2022.

Finally, the intention is that our work will serve as a basis for future studies, and that access to this information will allow the development of preventive interventions, such as educational strategies for mothers or primary caregivers, thus contributing to a reduction in the incidence of malnutrition diagnoses and improving public health.

METHODOLOGY

Study population

Our study was a cross-sectional descriptive observational study of children of both sexes who regularly attended the basic community health center of Cantón Camilo Ponce Enríquez, Ecuador. Observations were made from October 1 to December 31, 2022, resulting in a total of 137. The authorities of the participating institutions approved the research protocol with number MSP-CZ6-01D03-OT07-VAU-2022-0456-E. The protocol was in accordance with the Declaration of Helsinki. Parents signed the informed consent prior to data collection from the children.

Inclusion criteria were children who regularly attended the Camilo Ponce Enriquez Health Center, aged between 6 and 23 months and had parental consent. Exclusion criteria were children diagnosed with comorbidities and those who had not started CF.

Data collection process

This process was carried out through the application of the CAP survey of the Food and Agriculture Organization of the United Nations (FAO)[25], which includes a sociodemographic survey consisting of 10 questions; 7 that obtain information about the caregiver and 3 oriented to obtain data about the child. Among the questions oriented to the caregiver are data such as name, code generated to maintain confidentiality, age, sex, relationship to the child, number of births only in women, demographic characteristics and educational level. The 3 socio-demographic questions focused on the child's data are name, sex and age in months. The questions were asked in a direct, unhurried manner, giving the caregiver the necessary time to answer them appropriately. The survey took approximately 10-15 minutes to complete. In addition, the survey was designed to be as dynamic as possible, with graphic support materials to enhance interaction.

Module 2 related to children feeding, composed of 18 items divided into 3 sections, allowed to analyze the level of CF practices, knowledge and attitudes that the caregiver provides to the child (Table 1).

For the measurement of maternal knowledge, practices and attitudes in nutrition, the survey was applied, and the responses were tabulated and classified as follows ≥90 HIGH, 71 to 89 MEDIUM and <70 LOW: according to the ''Guide for measuring knowledge, attitudes and practices in nutrition (2014)''.

Nutritional status assessment

The information on the nutritional status was obtained from the clinical history data provided by the nursing department, which recorded anthropometric data such as weight (kg) and body length (cm). Unrecorded data were obtained directly through anthropometric measurements on the SECA infantometer and scale.

The following World Health Organization (WHO) indicators were used to determine nutritional status by anthropometry Weight/Age (W/A), Weight/Length (W/L), Length/Age (L/A), and Body Mass Index/Age (BMI/A). According to the World Health Organization's growth standards published in 2006, and considering the Z-score, the nutritional status was classified as normal weight (between +1 and -1 SD), overweight (above +2 SD) and malnutrition (below -2 SD).

Statistical analysis

After data collection, the data was processed and digitized into a Microsoft Excel spreadsheet. The results were coded to support confidentiality of the study population. To estimate the survey

Table 1. Module 2 of CAP survey from the Food and Agriculture Organization of the United Nations (FAO).

Section	Items
Practices	1. Did (baby's name) breastfeed or breast milk yesterday during the day or night? 2. What foods did the baby consume from the food list and what was the number of times? 3. How many times did (baby's name) eat food, i.e. meals and snacks other than liquids, yesterday during the day or night?
Knowledge	4. Until how many months do you think a woman should breastfeed her child? 5. At what age can babies eat foods other than breast milk? 6. Why do you think it is important to give your baby foods other than breast milk? 7. What do you think is the type of porridge (thick and watery or watery) to give to a young child? 8. Why did you choose that consistency of porridge? 9. What foods or types of foods can be added to make them more nutritious? 10. How can children be motivated to eat, for example when they don't want to?
Attitudes	11. Do you feel confident to prepare your child's meal? 12. Do you think giving your child different types of food is a good thing? 13. How difficult is it for you to give different types of food to your child every day? 14. How good do you think it is to feed your child 3 times a day or more? 15. How difficult is it for you to feed your child 3 or more times a day? 16. How good do you think it is to continue breastfeeding after 6 months? 17. How difficult do you think it is to continue breastfeeding after 6 months? 18. Do you think your child is being fed infrequently, sufficiently, or too often?

results, the proportion of correct answers for each question was calculated for the total number of respondents and weighted according to the classification.

For the statistical association, Pearson's Chi-squared was used to determine whether there was an association between the nutritional status of the children and the following variables level of CF practices, knowledge, and attitudes about CF.

The R Project for Statistical Computing (R-Studio) version RStudio 2023.06.1+524 "Mountain Hydrangea" Release for Windows was used for the statistical analysis.

RESULTS

Overall results of sociodemographic data

The total population of 137 individuals was analyzed, with mothers as the primary caregivers (77%), followed by grandmothers (15%), and in descending order, uncles, siblings, and fathers. The most representative age group was 19 to 29. Most of the respondents had completed secondary school (47.5%).

Regarding the socio-demographic characteristics of the children of the caregivers interviewed, it was found that the representative age group was 6 to 12 months (58%), and the female population was predominant (51.82%). In addition, 75.18% of the children were classified within the adequate weight range, data converging with the results of the diagnosis of malnutrition with 24.80% (Table 2).

Table 2. Sociodemographic characteristics.

Variables	Caregivers	
	Frequency (n)	**Percentage (%)**
Relationship		
Mother	105	76.64
Grandmother	21	15.33
Others	10	7.3
Father	1	0.73
Age (years)		
≤18	10	7.3
19 a 29	65	47.45
≥30	62	45.26
Education level		
Primary (School)	53	38.69
Secondary (High school)	65	47.45
Superior (University)	19	13.87
	Children	
Ages		
6 to 12 months	79	57.66
>12 meses	58	42.34
Sex		
Male	66	48.18
Female	71	51.82
Nutrition diagnosis		
Normal weight	103	75.18
Undernutrition	28	20.43
Overweight/obesity	6	4.37

Main results of the KAP survey

Regarding the knowledge of continuous breastfeeding only 20.44% of the mothers interviewed knew that children should be breasted until two years of age or more. Regarding the attitudes towards continuing breastfeeding after six months the data showed that the majority are appropriate, with 77.37%. Moreover, 60.58% thought that breastfeeding more than 6 months is not difficult but only 54.01 continued breastfeeding (Table 3).

In the feeding practices section, only 55.96% of the caregivers have adequate CF practices. In the knowledge section, 77.89% of the caregivers have adequate knowledge about CF. In addition, 77.55% of the caregivers have appropriate attitudes towards CF. 86.86% began CF at 6 months, 98.55% did it because breastfeeding is not enough. Moreover, 89.05% were confident to prepare food and 62.78% received 4 or more groups of foods.

With respect to breastfed children, 11.68% of children from 6 to 8 months and 31.39% of children from 9 to 23 months received adequate CF respectively. Moreover, only 8.03% of children from 6 to 24 months who were not breastfed received adequate CF (Table 4).

In Figure 1 we can observe that there is a tendency towards a worse nutritional status of children when the CF attitudes, knowledge and practice have a low level. Additionally, we

Table 3. Continuous breastfeeding main results.

Results	Category	Frequency	Percentage (%)
Knowledge			
Continuous breastfeeding			
Inadequate	≤6 months	9	6.57
Inadequate	6-11 months	59	43.10
Inadequate	12-23 months	39	28.47
Adequate	≥23 months	28	20.44
Inadequate	Other	1	0.73
Inadequate	Does not know	1	0.73
Total		137	100
Attitudes			
Breastfeeding more than 6 months			
Adequate	Is good	106	77.37
Inadequate	I am not sure	1	0.73
Inadequate	Is not good	30	21.90
Total		137	100
Perceived barriers			
Adequate	Is not difficult	83	60.58
Inadequate	I am not sure	2	1.46
Inadequate	Is difficult	52	37.96
Total		137	100
Practices			
Continuous breastfeeding			
Adequate	Yes	74	54.01
Inadequate	No	63	45.99
Inadequate	Does not know/Does not answer	0	0
Total		137	100

found that there was a statistically significant association when estimating Pearson's Chi-squared between nutritional diagnosis and maternal CF practices in children ($p<0.05$). There was also a statistically significant association between child nutrition diagnosis and knowledge ($p<0.001$) and attitudes ($p<0.001$).

DISCUSSION

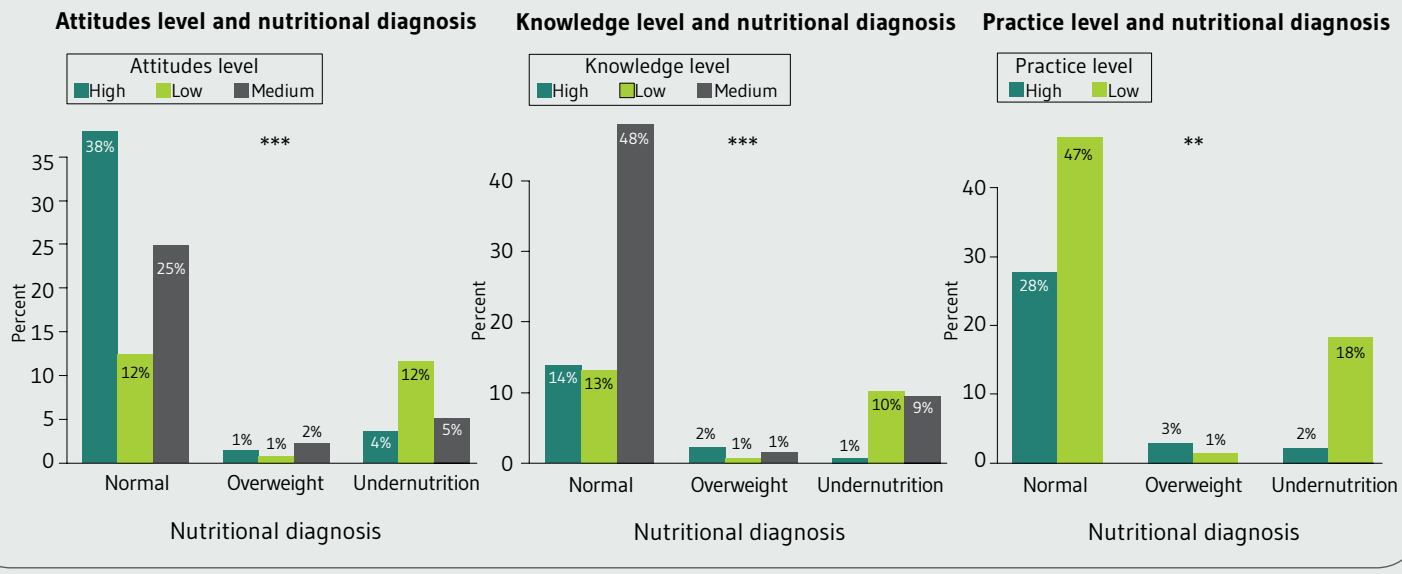
The main finding of this study was to highlight the lack of CF practices (55.96%) and how it relates to child nutritional status. Similarly, the proportion of Kenyan children between 6 and 23 months receiving a minimum acceptable diet remains low and

Table 4. Complementary feeding main results.

Results	Category	Frequency	Percentage (%)
Knowledge			
Start of CF			
Adequate	Began at 6 months	119	86.86
Inadequate	Began at other time	18	13.14
Inadequate	Does not know when began CF	0	0
Total		137	100
Reasons to start CF			
Adequate	Because breastfeeding is not enough	135	98.55
Inadequate	Other reasons	1	0.73
Inadequate	Does not know why began CF	1	0.73
Total		137	100
Attitudes			
Self-confidence to prepare food			
Adequate	Yes	122	89.05
Inadequate	Not sure	14	10.22
Inadequate	No	1	0.73
Total		137	100
Feeding frequency			
Adequate	Sufficient	108	78.83
Inadequate	Low	23	16.79
Inadequate	High	6	4.38
Total		137	100
Practices			
Food diversity			
Adequate	Child receives 4 or more groups of foods	86	62.78
Inadequate	Child receives less than 4 groups of foods	51	37.23
Total		137	100
Food frequency			
Adequate (breastfed children)	6-8 months	16	11.68
	9-23 months	43	31.39
Adequate (not breastfed children)	6-24 months	11	8.03
Inadequate (breastfed children)	6-8 months	5	3.65
	9-23 months	10	7.30
Inadequate (not breastfed children)	6-24 months	52	37.96
Total		137	100

CF: Complementary feeding.

Figure 1. Attitudes, knowledge and practice levels of complementary feeding related with nutritional diagnosis of children.



*p-value≤0.05; **p-value≤0.01; ***p-value≤0.001.

The significant p-value was set at ≤0.05.

has declined from 39% in 2008 to 31% in 2023[2]. Additionally, 13.14 % of our caregivers began CF at other time. A longitudinal study of pregnant women during their second trimester from rural and urban clinics in Western Cape, South Africa, found that 19% of infants were given complementary foods at four months[26]. In US, most infants (51%) are introduced to complementary foods and beverages sometime before 6 months[27]. In Madrid, Barcelona, Sevilla, and Murcia, the median age at which complementary foods were introduced was five months, with the first quartile at four months and the third quartile at six months. Of the total sample, 50 infants (8%) were introduced to solids at or during the age of three months. During the fourth and fifth month, 56% infants were introduced to solids, 26% infants at six months, and 11% beyond six months[28]. An additional study which assessed complementary feeding in 16 Latin American and Caribbean countries, also highlighted that dietary practices seem sub-optimal even among the wealthiest families[29]. In Taco Pozo, province of Chaco, Argentina, it was found that in 46.0% of children, complementary feeding was introduced at 6 months old, whereas in 28.3% and 25.7%, it was done before and after 6 months old, respectively. A remarkable proportion of cases does not comply with the indicators for complementary feeding practices[30]. Maternal practices in complementary feeding in infants 4-8 months of age in anemia's prevalent areas of Mórrope, Peru, are not adequate (19.9% started complementary feeding before the age of 6 months). Mothers mostly introduce from 6 months of age infusions such as anise and chamomile that are inhibitors of iron absorption, which can have an impact on the prevalence of anemia[31]. A study conducted in Colombia revealed a lack of compliance with key practices for the physical growth and mental development of children under the age of five. With respect to complementary feeding, all food groups are included, yet the proportions are inadequate, as evidenced by the low consumption of vegetables and fruits[32].

Our results have shown that the mother is most often responsible for the child, representing the highest percentage, which indicates that it is essential for her to have the appropriate education to provide the child with a nutritious and sufficient diet according to its needs.

Statistics on the level of knowledge and attitudes showed that more than 70% of caregivers have an adequate level related to CF. In Haldwani, India 88% mothers did not have knowledge about the benefit of breastfeeding. Pre-lacteal feeding refers to giving newborns foods or liquids other than breast milk during the first few days after birth. Cow milk was the most prevalent form of pre-lacteal feed while honey was second most popular amongst the interviewed subjects[33]. World authorities recommend that cow's milk be consumed from the first year of life onwards. Another study in Garhwal, India showed that 88.92% of mothers knew that breastfeeding

should be continued for 6 months after birth however, 16.35% of the mothers gave prelacteal feeds, with formula milk being the most common prelacteal feed[34]. Moreover, a study in Ghana demonstrated that 68% percent of the mothers knew the recommended duration of continued breastfeeding (20.44 % in our study), 56.5% how to ensure dietary diversity and enrich their children's diets (62.78% in our study) and 94% had positive attitude towards recommended infant and young child feeding practices (77.55% in our study). Majority of the mothers (92%) practiced continued breastfeeding (54.01 in our study)[35]. Moreover, we found that only 51.1% of our caregivers provided an adequate food frequency.

In Ecuador, there are strategies that low-income mothers can access, such as "*Infancia con Futuro*", which provides economic incentives to mothers through the 1000-day bonus, from conception, in order to prevent maternal malnutrition and diseases that can cause low birth weight and later a child with child malnutrition[36]. However, despite policies, Ecuador has a percentage of chronic malnutrition in children under 5 years of age of 23.1% according to UN Ecuador[37]. In order to enhance the efficacy of the intervention, it is essential to gain a more comprehensive understanding of the underlying issue. Without a clear understanding of the specific practices and knowledge to be addressed, it is challenging to develop effective food education interventions.

Accessing the government strategy requires meeting specific criteria including attending prenatal checkups, registering and receiving authorization from the Ministry of Economic and Social Inclusion (MIES), among other requirements. Complying with all regulatory conditions poses a significant challenge for most caregiving mothers residing in Canton Camilo Ponce Enriquez. This is largely attributed to issues such as difficult access, long distances between communities with MIES offices, and even traveling to the health center in the cantonal capital. A majority of these mothers reside in communities located three hours away, many of which are geographically inaccessible.

Our results could be attributed to cultural factors influenced by family, friends, and socioeconomic status, as well as inadequate resources to meet basic needs. Additionally, leaving the child in the care of a relative who may have very limited knowledge of a balanced and adequate diet is a very important factor.

The strengths of our study are that it is appropriately designed and that it delves into a reality that is insufficiently addressed in the Latin American context. As limitations, we consider that we did not work with a significant sample of the population, so the results cannot be extrapolated and their scope is limited to Camilo Ponce Enriquez. A second limitation is that the KAP survey was self-administered, which could lead to biases in the understanding of some questions.

CONCLUSIONS

CF knowledge, attitudes, and practices can impact significantly in the child nutritional status. The lower the knowledge and attitudes, the higher the child malnutrition. More research is needed to better understand this issue and develop more efficient strategies.

AUTHORS' CONTRIBUTIONS

R.L.: Conceptualization, Methodology, Research; K.G.: Conceptualization, Methodology, Research; L.V.: Drafting-Original draft, Data Analysis; A.S.: Drafting-Original draft, Data Analysis, Redaction and Editing final version.

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COMPETING INTERESTS

The authors declare that there are no conflicts of interest in writing this manuscript.

REFERENCES

(1) Lutter CK, Chaparro CM. Malnutrition in infants and young children in Latin America and the Caribbean: Achieving the Millennium Development Goal [Internet]. Washington (DC): The Pan American Health Organization; 2008 [cited 2024 Mar 14]. 203 p. Available from: https://iris.paho.org/bitstream/handle/10665.2/18641/9789275129289_eng.pdf?sequence=1&isAllowed=y.

(2) Kamudoni P, Kiige L, Ortenzi F, Beal T, Nordhagen S, Kirogo V, et al. Identifying and understanding barriers to optimal complementary feeding in Kenya. Matern Child Nutr. 2024; 20(S3). doi: 10.1111/mcn.13617.

(3) United Nations International Children's Emergency Fund. Improving

young children's diets during the complementary feeding period—UNICEF Programming Guidance [Internet]. New York: UNICEF Programming Guidance; 2020 Feb [Cited 2024 Mar 14]. 71 p. Available from https://www.unicef.org/documents/improving-young-childrens-diets-during-complementary-feeding-period-unicef-programming.

(4) Gulumser Sisko S, Bag O, Kondolot M, Nalbantoglu B, Gokcay G. Breastfeeding and infant nutrition knowledge, attitude, and practices of parents. Turk Arch Pediatr. 2022; 57(4): 441-47. doi: 10.5152/TurkArchPediatr.2022.21201.

(5) Chan K, Whitfield KC. High confidence, yet poor knowledge of infant feeding recommendations among adults in Nova Scotia, Canada. Matern Child Nutr. 2020; 16(2). doi: 10.1111/mcn.12903.

(6) Allotey D, Flax VL, Ipadeola A, Kwasu S, Bentley ME, Worku B, et al. Maternal and paternal involvement in complementary feeding in Kaduna State, Nigeria: The continuum of gender roles in urban and rural settings. Matern Child Nutr. 2022; 18(2). doi: 10.1111/mcn.13325.

(7) Jacquier EF, Angeles-Agdeppa I, Lenighan YM, Toledo MB, Capanzana MV. Complementary feeding patterns of Filipino infants and toddlers lack diversity, especially among children from poor households. BMC Nutr. 2020; 6(1): 51-60. doi: 10.1186/s40795-020-00376-1.

(8) World Health Organization. Malnutrition [Internet]. 2024 March 1 [cited 2024 Feb 11]. Available from: https://www.who.int/es/news-room/fact-sheets/detail/malnutrition.

(9) World Health Organization; United Nations Children's Fund. Indicators for assessing infant and young child feeding practices: definitions and measurement methods [Internet]. 2021 [cited 2024 Mar 13]. Available from: https://iris.who.int/bitstream/handle/10665/340706/9789240018389-eng.pdf?sequence=1.

(10) Shivakumar N. Encyclopedia of Human Nutrition [Internet]. 4th ed. 2023 Mar. Chapter 4, Complementary Feeding; [cited 2024 Mar 14]; p. 43–9. Available from: https://www.sciencedirect.com/science/article/abs/pii/B9780128218488000184.

(11) Berhanu Z, Alemu T, Argaw D. Predictors of inappropriate complementary feeding practice among children aged 6 to 23 months in Wonago District, South Ethiopia, 2017; case control study. BMC Pediatr. 2019; 19(1): 146-59. doi: 10.1186/s12887-019-1523-6.

(12) Harrison L, Padhani Z, Salam R, Oh C, Rahim K, Maqsood M, et al. Dietary strategies for complementary feeding between 6 and 24 months of age: The evidence. Nutrients. 2023; 15(13): 3041-66. doi: 10.3390/nu15133041.

(13) Schwartz C, Scholtens PA, Lalanne A, Weenen H, Nicklaus S. Development of healthy eating habits early in life. Review of recent evidence and selected guidelines. Appetite. 2011; 57(3): 796-807. doi: 10.1016/j.appet.2011.05.316.

(14) Bouchard KL, Grigsby-Toussaint DS, Fox K, Amin S, Vadiveloo M, Greaney ML, et al. Maternal experiences with discussing complementary feeding in primary care. Int J Environ Res Public Health. 2022; 19(19): 12061-76. doi: 10.3390/ijerph191912061.

(15) Wormald N, Oyanader B, Piñuñuri R, Valenzuela C. Características de la alimentación temprana y actual de preescolares en la Región de Valparaíso, Chile. Rev Chil Nutr. 2021; 48(3): 366-373. http://dx.doi.org/10.4067/s0717-75182021000300366.

(16) Mayen AL, Marques-Vidal P, Paccaud F, Bovet P, Stringhini S. Socioeconomic determinants of dietary patterns in low- and middle-income countries: a systematic review. Am J Clin Nutr. 2014; 100(6): 1520-31. doi: 10.3945/ajcn.114.089029.

(17) Shrestha S, Pokhrel M, Mathema S. Knowledge, attitude and practices among mothers of children 6 to 24 months of age regarding complementary feeding. JNMA J Nepal Med Assoc. 2020; 58(230): 758-63. doi: 10.31729/jnma.5274.

(18) Gizaw AT, Sopory P, Sudhakar M. Determinants of knowledge, attitude and self-efficacy towards complementary feeding among rural mothers: Baseline data of a cluster-randomized control trial in South West Ethiopia. PLoS One. 2023; 18(11): e0293267. doi: 10.1371/journal.pone.0293267.

(19) Yadav KK, Awasthi S. Childhood pneumonia: what's unchanged, and what's new? Indian J Pediatr. 2023; 90(7): 693-99. doi: 10.1007/s12098-023-04628-3.

(20) Dipasquale V, Romano C. Complementary feeding: new styles versus old myths. Minerva Med. 2020; 111(2): 141-52. doi: 10.23736/S0026-4806.19.06320-1.

(21) Campoy C, Campos D, Cerdo T, Dieguez E, Garcia-Santos JA. Complementary feeding in developed countries: The 3 Ws (When, What, and Why?). Ann Nutr Metab. 2018; 73(1): 27-36. doi: 10.1159/000490086.

(22) Huiracocha-Tutiven L, Orellana-Paucar A, Abril-Ulloa V, Huiracocha-Tutiven M, Palacios-Santana G, Blume S. Child Development and Nutritional Status in Ecuador. Glob Pediatr Health. 2019; 6: 2333794X18821946. doi: 10.1177/2333794X18821946.

(23) Boswell N. Complementary feeding methods—A review of the benefits and risks. Int J Environ Res Public Health. 2021; 18(13): 7165-80. doi: 10.3390/ijerph18137165.

(24) Instituto Nacional de Estadísticas y Censos. Población y demografía [Internet]. Quito (EC); 2024. [Cited 2024 Jul 3]. Available from: https://www.ecuadorencifras.gob.ec/censo-de-poblacion-y-vivienda/.

(25) Fautsch Y, Glasauer P. Guidelines for assessing nutrition-related knowledge, attitudes and practices. Food and Agriculture Organization of the United Nations. Rome. 2014.

(26) Sokhela H, Govender L, Siwela M. Complementary feeding practices and childhood malnutrition in South Africa: The potential of moringa oleifera leaf powder as a fortificant: A narrative review. Nutrients. 2023; 15(8): 2011-17. doi: 10.3390/nu15082011.

(27) Bailey RL, Stang JS, Davis TA, Naimi TS, Schneeman BO, Dewey KG, et al. Dietary and complementary feeding practices of US infants, 6 to 12 months: A narrative review of the federal nutrition monitoring data. J Acad Nutr Diet. 2022; 122(12): 2337-45. doi: 10.1016/j.jand.2021.10.017.

(28) Klerks M, Roman S, Bernal MJ, Haro-Vicente JF, Sanchez-Siles LM. Complementary feeding practices and parental pressure to eat among Spanish infants and toddlers: A cross-sectional study. Int J Environ Res Public Health. 2021; 18(4): 1982-99. doi: 10.3390/ijerph18041982.

(29) Cavalcanti AU, Boccolini CS. Desigualdades sociais e alimentaçao complementar na América Latina e no Caribe. Cien Saude Colet. 2022;27(2):619–30. doi: 10.1590/1413-81232022272.31862020

(30) Spipp J, Riernersman C, Rivas F, Calandri E, Albrecht C. Assessment of dietary intakes and feeding practices in children aged 6–23 months in a town in the Northeast region of Argentina. Arch Argent Pediatr. 2022; 120(6): 369-76. doi: 10.5546/aap.2022.eng.369.

(31) Castillo E, Chuman A, Diaz C. Maternal practices in complementary feeding of infants living in anemia's prevalent areas in northern Peru. Rev Cubana Pediatr. 2022; 94(2): e1956.

(32) Madero K, Ruidiaz K, Rivera J, López DM. Application of key practices: breastfeeding, complementary feeding, micronutrients, mental and social development of children under 5 years of

age. Arch Med (Manizales). 2020; 21(1): 92-106. doi: 10.30554/archmed.21.1.3876.2021.

(33) Kumar S, Jha SK, Singh A, Rawat CM, Awasthi S, Bano M, et al. Knowledge, attitude and practices (KAP) regarding breastfeeding: A community based cross sectional study from rural Uttrakhand. Healthline. 2015; 6(2): 17-22.

(34) Kumar R, Mundhra R. A cross-sectional study of knowledge, attitude, and practice toward breastfeeding among postnatal mothers delivering at a tertiary care center in Garhwal, India. Int J Appl Basic Med Res. 2021; 11(2): 64-69. doi: 10.4103/ijabmr.IJABMR_605_20.

(35) Bimpong KA, Cheyuo EK, Abdul-Mumin A, Ayanore MA, Kubuga CK, Mogre V. Mothers' knowledge and attitudes regarding child feeding recommendations, complementary feeding practices and determinants of adequate diet. BMC Nutr. 2020; 6(1): 67-75. doi: 10.1186/s40795-020-00393-0.

(36) Ministry of Economic and Social Inclusion. More opportunities for Children with a Future: On Children's Day, Lasso presented the 1000 Days Bonus [Internet]. Riobamba. 2022 Jun 1 [cited 2023 Apr 22]. Available from: https://www.inclusion.gob.ec/mas-oportunidades-para-una-infancia-con-futuro-en-el-dia-de-la-ninez-lasso-presento-el-bono-de-los-1000-dias/.

(37) United Nations. Together we go further: the UN in Ecuador, working against chronic child malnutrition [Internet]. 2022 Dec 23 [cited 2023 Mar 9]. Available from: https://ecuador.un.org/es/213134-juntos-llegamos-m%C3%A1s-lejos-la-onu-en-ecuador-trabajando-contra-la-desnutrici%C3%B3n-cr%C3%B3nica.