Construction and validation of an instrument to measure knowledge of mothers and caregivers on complementary feeding of infants

Construcción y validación de un instrumento para medir conocimientos de madres y cuidadores sobre alimentación complementaria de infantes

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What do we know about the subject matter of this study?

Complementary feeding is a key element in the intellectual, physical, and emotional development of infants. The knowledge of mothers and caregivers is a determining factor in the feeding practices of the children under their care.

What does this study contribute to what is already known?

A rigorously constructed and validated instrument to measure knowledge in complementary feeding based on available guidelines is presented. An instrument of high methodological quality was designed, which is expected to improve the guidelines available in the region.

Abstract

Adequate nutrition during the first two years of life is crucial for the full development of human potential. Inadequate, early, or late introduction of complementary feeding has consequences in the short- and long-term. Complementary feeding depends largely on the knowledge of the caregiver who, in Latin American countries, is usually the mother. **Objective:** To create and validate an instrument to measure knowledge about complementary feeding. **Subjects and Method:** Observational study in which 80 community mothers and 12 expert pediatricians participated. It was carried out in two stages, the creation of the instrument (following the 7 phases proposed by Sampieri) and the validation through the evaluation of the apparent validity, construct and content validity, internal consistency, and intra-observer reliability. **Results:** A self-administered instrument was created that initially included 14 questions about maternal and caregiver's knowledge. During the validation of the

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construct, 3 domains were identified and four questions were eliminated. In the content validation, 10 questions of the final instrument scored higher than 9 (on a scale of 0-10) in the characteristics of quality, vocabulary, relevance, and topicality. The global internal consistency of the instrument was moderate (Cronbach's alpha: 0.64) and the intra-observer reliability was acceptable (k: 0.21-0.40) for 80% of its items. **Conclusions:** the first self-administered instrument validated in the region to measure the knowledge of mothers and caregivers about complementary feeding is presented. It will allow to design and develop strategies in relation to maternal and caregiver's knowledge of complementary feeding.

Introduction

The period between birth and two years of age is a critical time window for the promotion of optimal growth, health, and development[1,2], where nutrition is essential for the full development of the potential of each human being[3]. Happy Breastfeeding is a global public health recommendation, understood as the practice of Exclusive Breastfeeding (EBF) from birth to the sixth month of life and continuing thereafter with the gradual introduction of complementary foods up to 24 months in a process called Complementary Feeding (CF). This stage of the child's life is important since, from the sixth month of life, the EBF does not cover the infant's energy and micronutrient needs, therefore, it is necessary to provide appropriate complementary foods[4-7]. This process, considered as a *continuum*, does not constitute a replacement, interruption, or interference with breastfeeding (BF)[8].

An adequate introduction of CF supplements with micronutrients such as vitamins A, C, and D, fluorine, iron, iodine, and zinc, creates adequate eating habits. This stimulates the psycho-emotional development of the child since it is the stage of discovery and perception of flavors, colors, textures, and contact with new foods and objects. Thus, a new stage begins and therefore additional needs arise in the educational process with the family[9].

Early and late introduction of CF has been associated with short and long-term consequences. Early implementation of CF is associated with a significant increase in the prevalence of overweight, obesity[10-13], and respiratory disease[14]. In addition, it may lead to kidney damage due to solute overload in an immature organ[15] or the development of anemia[16]. On the other hand, the late start of the introduction of calories and nutrients, especially iron and zinc, could lead to undernutrition[16,17], which, in the long term, could affect intellectual performance, produce general health alterations during adolescence and adulthood, as well as problems in work performance[18].

In Colombia, the National Survey of the Nutritional Situation of Colombia conducted in 2010 (ENSIN 2010), highlighted the magnitude of the problem by reporting that the introduction of complementary foods to breast milk occurs early (1.8 months), which interferes with the EBF, in addition to the fact that the quality of the diet is especially deficient in children between 6 and 8 months and the consumption of fruits and vegetables is not common[19].

The same survey, conducted in 2015 (ENSIN 2015), showed that acute malnutrition reached 2.3% and that 41% of children aged between 6 and 23 months have a minimum acceptable diet, but with a deficient frequency and variety of foods[20]. On the other hand, the department of Cauca, in the southwest of Colombia, is part of the regions with unsafe nutritional and food of the country[21], presenting a delay in the infantile growth that surpasses 20%, classifying internationally this as a median prevalence[19].

In addition, the adequacy of CF with time, sufficiency, safety, and adaptation also depends on the availability of varied foods in the household and the knowledge and feeding practices of the family and caregivers, who, generally in Latin America and Colombia, are the mothers (22). The degree of knowledge and maternal practices about CF depends on cultural factors and recommendations made by people close to them and health professionals[23]. The lack of basic nutritional knowledge and some misconceptions lead to at least 50% of the mothers having inadequate feeding practices[9].

In a literature review, conducted for this research, we found that Latin American mothers have adequate knowledge about BF, however, knowledge about CF was deficient[24]. This knowledge was also evaluated by instruments that were incompletely validated and did not include the domains of the CF established by the World Health Organization (WHO)[1] and the Pan American Health Organization (PAHO)[16]. The objective of this study was to construct and validate a tool to measure maternal and caregiver knowledge about CF. An instrument like this, in addition to allowing for adequate measurement of CF knowledge, will provide a firm foundation for intervention in those populations that require it.

Subjects and Method

Type of study

Observational study in which a self-administered survey was constructed and validated. The construction stage was based on the seven phases proposed by Hernández Sampieri[25,26] which are: fundamental redefinitions, literature-focused review, identification of domains and variables to be measured, key decision making, construction, pilot test, and creation of the final version. In the validation stage, psychometric properties were measured in order to assess its validity and reliability.

Population and sample

It was formed by community mothers, technical leaders in preschool education from the Kindergartens of the Colombian Family Welfare Institute (ICBF), from the *Red Interinstitucional y Comunitaria para la Promoción del Buen Trato en la Infancia* in Popayán-Cauca, *Rico Buen Trato*, who accepted to participate by signing the informed consent. The sample size of the target population was defined as 80 participants, that is, 5 participants for each question of knowledge of the instrument, which is in line with the recommendations in the literature[27,28]. In addition, it should be mention that before applying the instrument, we carried out a pilot test with 40 ICBF community mothers, linked to a different kindergarten than those who participated in the validation stage. Finally, of the 80 mothers comprising the validation sample, 57 were selected for the second measurement, which evaluated possible intra-observer variations, known as "test-retest".

Data collection, study conduct, and statistical analysis

- **Validity**
1. *Apparent or logical validity:* 12 doctors specialized in pediatrics participated, aged between 32 and 64; with 2 to 30 years of professional experience; and 2 of them with a subspecialty in pediatric cardiology and pediatric intensive care, from Popayán, Pasto, and Cali, Colombia. Due to their proximity to the city of the investigated group, they have a greater linguistic relevance towards the target population. In addition, the 80 community mothers included in the study were asked if they considered that the instrument measured knowledge about CF, as suggested in the literature[29,31], through the question "*¿Do you consider that this instrument measures knowledge about complementary feeding?*".

2. *Content validity:* The 12 pediatric specialists were asked online if they considered that the domains and questions included in the instrument represented the concept of CF comprehensively[29,31]. The group of pediatricians who participated in this process determined for each question that 1) if the vocabulary was appropriate and 2) if the question was clear, relevant, and current, and then they scored on a scale of 0 to 10. It was established that if, among the evaluators, the questions that scored less than 6 on average, they will be reviewed by the research group. The degree of agreement among the experts was evaluated for each item using the Intraclass Correlation Coefficient (ICC) considering it as bad or null (ICC < 0.20), mediocre (ICC = 0.21-0.40), moderate (ICC = 0.41-0.60), good (ICC = 0.61-0.80) or very good (ICC = 0.81-1.00)[31-33].

3. *Criterion validity:* Since this type of validity assumes the existence of a gold standard[29,34], its assessment was not carried out due to the inexistence of a standard for evaluating knowledge in CF[24].

4. *Construct validity:* Through the Exploratory Factor Analysis (EFA), we evaluated the construct validity, which allows establishing if the CF construct is a single one or if there is a structure of domains or factors within it[35]. Using the Kaiser-Meyer-Olkin (KMO) test, we evaluated the collinearity assumption, which indicates if the EFA is adequate for evaluating construct validity.

- **Reliability**
1. *Internal consistency:* Once the factors were identified, the internal consistency of the instrument was evaluated using Cronbach's alpha[36]. The results were presented for the items regarding the global score (item-total correlation) and the items of each domain (item-subscale correlation), considering acceptable those values of Cronbach's alpha ≥ 0.6 and good consistency the values ≥ 0.7[29-31].

2. *Intra-observer reliability or temporal stability:* It was evaluated by comparing the responses recorded by 57 of the 80 participants. The instrument was completed in writing at two different times, 15 days apart from each other. On both occasions, it was carried out in an auditorium. For its analysis, Cohen's Kappa coefficient was used[29], which was interpreted through the scale proposed by Landis and Koch that classified the strength of the concordance in six levels: poor (< 0.01), slight (0.01-0.20), acceptable (0.21-0.40), moderate (0.41-0.60), considerable (0.61-0.80), and almost perfect (0.81-1)[38]. Since the instrument was a self-administered survey, there was no interobserver reliability assessment[29].

For all analyses, a 95% confidence interval, 5% alpha error, and p < 0.05 value were established. The analyses were performed in SPSS 22.0 and R Statistics software.

Ethical considerations

According to resolution number 008430 of 1993, of the Colombian Ministry of Health, this study was considered with no risk. It was approved by the Ethics Committee of the San José University Hospital of the City of Popayán, Colombia (Approval Act number 007 of July 28, 2016).

Results

The following are the results of the construction process of the proposed instrument according to the stages of Hernández Sampieri.

Stage I - Development and Construction

1. *Phase I, fundamental redefinitions:* Through periodic meetings, the research group reviewed the objectives of the study, the information to be collected with the instrument, and the population to which it would be directed.

2. *Phase II, literature-focused review:* Structured search that included original and complete studies that evaluated maternal knowledge of CF in Latin America (24). Search time was from January 2001 to June 2016. The databases used were MEDLINE (Pubmed), ScienDirect, EBSCO, LILACS, and Cochrane Library, with the keywords *nutrition, complementary feeding, child, weaning, knowledge,* and in Spanish *nutrición, alimentación complementaria, niños, destete, conocimiento, Latinoamérica.* The search results showed 20 studies, 12 of them had a measurement instrument[24].

3. *Phase III, identification of domains and variables to be measured:* The review of these studies allowed us to start the structuring of the instrument, which is made up of two large domains according to WHO guidelines[1,16]. The first one was sociodemographic variables (age, origin, marital status, schooling, affiliation with the Colombian health system, number of children, prenatal controls in the last pregnancy, orientation received on BF and CF); and the second one was knowledge in CF (definition, start and end time, frequency, type of food, use of nutritional supplements, consistency, system and form of feeding, place, quantity, and benefits).

4. *Phase IV, key decision making:* A tool with 16 questions on CF was created. In reviewing the last update by the European Society for Pediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN) on the topic, two questions on the type of foods that should be started based on the age of the infant were removed[38].

5. *Phase V, construction:* 24 questions, 10 on basic data and 14 on CF. The second group included an initial statement with a correct answer and four binary type distractors (correct versus incorrect, or do not know).

6. *Phase VI, pilot test:* A self-administered survey on paper was applied to 40 participants in an auditorium. The average time was 19 minutes (range 16-24). Also, the participants were asked regarding the simplicity, amenability of the format, concision, and clarity of the questions, identifying the need to make some modifications (Appendix 1).

7. *Phase VII, final version:* A style review was carried out by an external expert, who suggested adjustments in relation to the use of words that would allow the inclusion of both sexes, the use of short and clear sentences, and the general organization of the form of the instrument. Finally, the instrument consisted of the title, objective, instructions, questions, and acknowledgment (Appendix 2).

Stage II - Validation

In this stage of the process, a total of 80 community mothers and 12 pediatricians participated in the content validation process. The average age of the participants was 43 ± 12.5 years (range 19-74). The median number of children was 2 (range 0-8). Participants reported a median attendance at prenatal controls in the last pregnancy of 8 visits (range 0- 9). Table 1 shows other sociodemographic characteristics.

Stage IIA - Validity

1. *Apparent and content validity:* All participants stated that the instrument allowed them to measure the knowledge of mothers and caregivers about CF. The mean scores assigned by the pediatric experts to each question regarding the characteristics of interest, remained above 9.0 for most variables, except for the clarity of the question about the definition of CF, which obtained a mean score of 8.3 (Table 2). In no case were mean scores less than 6.

2. *Construct validity:* The EFA started with the analysis of the correlation matrix between all the questions. Four questions presented linear corre-

lations lower than 0.3 and were therefore eliminated. These questions were 1) Number of times per day that the child should eat other foods than milk, 2) Food group with which complementary feeding should be initiated, 3) Age at which the child can eat food consumed by the family, and 4) Benefits of CF.

With the remaining 10 questions, we performed again an EFA and found a regular correlation between pairs of variables (KMO = 0.674) and a significant linear correlation between variables ($\chi^2 = 137$; $p < 0.0001$) leading to performing the EFA. Four intrinsic factors were identified. One of them was removed because it contained only one question and the analysis was forced to extract only three factors that explained 54.8% of the total variance. Table 3 shows the results of the rotating components of the EFA.

Stage IIB - Reliability

1. *Internal consistency:* The global Cronbach's alpha for all 10 items of the instrument was 0.60, which indicated moderate reliability, fluctuating between 0.48 and 0.64 among the factors identified by EFA (Table 3).

2. *Intra-observer reliability:* The application 15 days after the first application (test-retest) showed acceptable agreement (k: 0.21-0.40) for 80% of the instrument items ($p < 0.05$). Table 4 shows the results.

Table 1. Sociodemographic characteristics of the participating mothers

Variable	N	%
Area of origin		
Rural	68	85
Urban	12	15
Civil status		
Single	27	33.8
Married	21	26.3
Consensual union	24	30.0
Separated/Divorcied	4	5.0
Widowed	4	5.0
Scolarship		
Primary	1	1.3
Secondary	6	7.5
Téchnique	69	86.3
University	4	5.0
Affiliation to the health system		
Contributive	73	91.3
Subsidized	6	7.5
Special regime	1	1.3
Guidance about breastfeeding		
Yes	62	77.5
No	18	22.5
Person who gave you information about CF		
Health care provider	50	62.5
Family	21	26.2
None of the above	9	11.2

CF: Complementary feeding.

Table 2. Content validation by pediatric experts. Average scores assigned to the questions by characteristic explored

	Questions	Vocabulary	Clarity	Relevance	Current
1	Definition of complementary feeding	9.0	8.3	9.5	9.0
2	Child's age until which breast milk should be given as the only food	9.7	9.7	9.7	9.6
3	Nutritional or multivitamin supplements should be given	9.8	10.0	10.0	9.9
4	Consistency of the child's food, according to his months of age	9.5	9.2	9.9	9.2
5	Adequate system to supply food different than breast milk	9.8	9.8	10.0	10.0
6	Place where food should be given to the child	9.8	9.8	10.0	9.8
7	Foods to prevent the child from developing anemia	9.8	9.9	10.0	9.9
8	Age to end complementary feeding	9.7	9.8	9.8	9.7
9	Proper way for supplying complementary foods	9.8	9.6	9.9	9.4
10	Amount of complementary foods to be supplied at 12 months	9.8	9.3	9.8	9.9
	Total averages	9.7	9.5	9.8	9.6

*Intraclass correlation coefficient (ICC) by category: Vocabulary = 0.568 CI 95% [0.031-0.873]; Clarity = 0.855 CI 95% [0.674-0.957]; Relevance = 0.347 CI 95% [-0.466-0.808]; Current = 0.588 CI 95% [0.74-0.879].

Table 3. Rotated matrix of the factors found by Exploratory Factor Analysis and Cronbach's Alpha of each factor

	Component		
	1	2	3
Generalities of the CF. Cronbach's alpha = 0.64			
Child's age until which breast milk should be given as the only food	0.732	-0.415	
Consistency of the child's food, according to his months of age	0.715		
Adequate system to supply food different than breast milk	0.624		
Nutritional or multivitamin supplements should be given	0.611		
Times to manage CF. Cronbach's alpha = 0.48			
Amount of complementary foods to be supplied at 12 months		0.694	
Age to end complementary feeding		0.657	
Definition of complementary feeding		0.654	
Form and place CF. Cronbach's alpha = 0.51			
Proper way for supplying complementary foods			0.893
Place where food should be given to the child	0.523		0.603
Foods to prevent the child from developing anemia	0.470		0.413

CF: Complementary feeding

Table 4. Cohen's Kappa in the concordance analysis "test retest analysis"

Question	Kappa coefficient	Agreement strength	P value	CI 95%
1	0.3386	A	0.01*	0.0808 – 0.5965
2	0.5371	M	< 0.01*	0.2603 – 0.8138
3	0.2899	A	< 0.01*	0.0377 – 0.5422
4	0.2400	A	0.33	-0.0142 – 0.4942
5	0.2845	A	0.015	-0.0707 – 0.6397
6	0.3049	A	0.01*	-0.1873 – 0.7971
7	0.4031	A	0.01*	0.1716 – 0.6347
8	0.3080	A	0.01*	0.1179 – 0.4982
9	0.1831	S	0.11	-0.0583 – 0.4245
10	0.3558	A	< 0.01*	0.1793 – 0.5322

*Statistically significant. Agreement: P = poor, S = slight, A = acceptable, M = moderate.

Discussion

This research allowed the construction of the first instrument created and validated in Southwestern Colombia, which measures mothers' and caregivers' knowledge about CF adapted to the context of the region in which we worked. The process for its validation was carried out with a high methodological rigor, according to the requirements on validation methods.

This study was initiated with a thorough bibliographic review, which allowed establishing domains and variables for the construction of the instrument, using the most recent updates of the world literature on CF[1,16,38]. This provides solidity in terms of the selection of contents that were incorporated in the construction of this instrument.

This could explain the high score the content validation obtained. Thus, the mean of the scores assigned by the pediatricians, who act as experts, gave each question an evaluation above 9 in most of the variables, in addition to showing a degree of agreement from moderate to very good, in the scores assigned to each question.

On the other hand, satisfactory validity and tests for

construct validity indicate that the instrument measures mothers' and caregivers' knowledge of CF and is therefore considered suitable for use in future research.

Given that the results are acceptable in reliability, measured by internal consistency, and intra-observer reliability, this indicates that the instrument could be improved in the future. However, it is important to point out that in studies that evaluate knowledge, the evaluation of intra-observer reliability may be affected by progressive learning, not necessarily by some type of training in the subject matter of interest, which could have occurred in this study[39,40].

In addition to the above, it is worth mentioning that, the result of the EFA allowed to eliminate questions that could be irrelevant or that would contribute little to the measurement of CF. This improved internal consistency, but could have affected the construct validity of the instrument (reflected in 54.8% of the total variance explained). These situations represent an opportunity for future research, where aspects that could improve the internal consistency and structure of the tool could be explored[41].

Although the instrument generated by this research could be improved, it is a relevant enhancement to have a tool that allows measuring the knowledge of the caregivers about CF objectively. This will make research in this field more valid than current research. Combined with the afore mentioned, the information collected with this instrument will allow for more careful interventions at the primary health level, in this crucial stage of child feeding.

In addition, it is important to highlight that there is little literature on the subject in Latin America and the primary studies carried out in Peru and Ecuador, which address the evaluation of knowledge about CF in mothers and/or caregivers, present deficiencies in terms of validation of the instrument used for measurement[24]. Also, studies conducted in the Colombian population describe practices related to CF and knowledge about BF, but there were no studies that measured knowledge about CF[24]. This could be due to the absence of an instrument capable and suitable to perform such measurement.

On the other hand, it should be considered that the Latin American population in general and the Colombian population in particular, presents cultural and geographic heterogeneity, which leads to variability in terms of food. Consequently, it is recommended to be careful in using the instrument created in this study without a prior review and total or partial validation if necessary, especially in Colombian regions such as the Caribbean, Andean, Amazon, Orinoco, Pacific, and Island ones.

Finally, the created instrument has the possibility of becoming a tool suitable for measuring the knowledge of mothers and caregivers about CF. The use of this questionnaire will allow for the identification of groups of mothers and caregivers that need support in terms of CF, as well as for conducting potential public health interventions aimed at improving the knowledge about CF in the community and those directly involved in infant feeding.

In conclusion, this instrument presents satisfactory validity, moderate internal consistency, and acceptable reliability. Given the lack of a similar instrument, it is suitable for objectively measuring the knowledge of CF of mothers and caregivers of infants.

Ethical Responsibilities

Human Beings and animals protection: Disclosure the authors state that the procedures were followed according to the Declaration of Helsinki and the World Medical Association regarding human experimentation developed for the medical community.

Data confidentiality: The authors state that they have followed the protocols of their Center and Local regulations on the publication of patient data.

Rights to privacy and informed consent: The authors have obtained the informed consent of the patients and/or subjects referred to in the article. This document is in the possession of the correspondence author.

Conflicts of Interest

Authors declare no conflict of interest regarding the present study.

Financial Disclosure

Authors state that no economic support has been associated with the present study.

Appendix 1. Validation of an instrument to measure knowledge in CF. Changes made to the instrument after pilot test

- At identification section, question number 1 must be removed, which request to write the name and date of birth, only the option that requests the age will be preserved.

- In question number 8, regarding the number of prenatal controls, the respondents must provide numerical answers and if they haven't had prenatal controls, write the number zero.

- Question number 11, regarding who provides information on complementary feeding, the response options will be more general:
    A. Family.
    B. Through a health entity.
    C. Through some technological information system.

- Regarding the section that evaluates maternal knowledge, question number 15 was condensed as follows: With which food group should complementary feeding be started? Choose only one answer.

- Question number 19, which refers to the initiation of multivitamin and nutritional supplements, the answer option C "Only to children indicated by the pediatric" should be changed to the answer option "Only to children indicated by the doctor"

- Question number 26, regarding the appropriate way to provide complementary foods, the answer options were modified due to problems in the writing, remaining as follows: Allow him/her to eat alone and experiment with various combinations and flavors. Give him/her all the food in an assisted way since they are not able to make it themselves. Give him/her prizes and games to eat. Does not know.

Appendix 2. Validation of an instrument to measure knowledge in CF. Instrument for measurement knowledge in complementary feeding in its original language version (Spanish)

INSTRUMENTO PARA LA EVALUACIÓN DE CONOCIMIENTOS MATERNOS O DEL CUIDADOR, SOBRE ALIMENTACIÓN COMPLEMENTARIA

Marque con una **X** la respuesta que usted considere adecuada para las preguntas con opciones de respuesta multiple y complete la información en las preguntas que se continúan con una línea. **Ingrese solo una opción** para cada pregunta y por favor, **no deje ninguna sin responder.**

I. DATOS SOCIODEMOGRÁFICOS

1	¿Cuál es su edad?	*Escriba aquí su edad en años cumplidos:* _____								
2	¿Cuál es su dirección?	*Escriba aquí su dirección:* _____								
		a	Vereda			**b**	Ciudad			
3	¿Cuál es su estado civil?	**a**	Soltero	**b**	Casado	**c**	Unión libre	**d**	Separado	**e**	Viudo
4	Escolaridad alcanzada	**a**	Ninguna	**b**	Primaria	**c**	Secundaria	**d**	Técnica	**e**	Universitaria
5	¿Cuál es su ocupación?	*Escriba aquí su ocupación:* _____								
6	Seguridad social	**a**	Contributivo	**b**	Subsidiado	**c**	Régimen especial	**d**	No afiliado		
	¿Cuál es su EPS?	Escriba aquí el nombre de su Empresa promotora de salud (EPS): _____								
7	Número de hijos	Escriba aquí el número de hijos (cero si no tiene): _____								
8	CPN en último embarazo	En su último embarazo, ¿cuántos controles prenatales realizó?								
		a	No ha estado en embarazo		**b**	Escriba aquí el número de controles prenatales en su último embarazo:			
9	Orientación lactancia materna	¿Ha recibido orientación sobre Lactancia Materna?								
		a	Si la ha recibido		**b**	No la ha recibido				
10	Orientación alimentación complementaria	¿Cómo recibió la información sobre ALIMENTACIÓN COMPLEMENTARIA?								
		a	Por medio de un familiar	**b**	Por medio de alguna entidad de salud	**c**	Por algún medio tecnológico de información	**d**	No recibió información
		Otro, escriba aquí cual: _____								

II. CUESTIONARIO SOBRE ALIMENTACIÓN COMPLEMENTARIA

INSTRUCCIONES: Marque con una **X** la respuesta que usted considere adecuada. Elija **solo una opción** para cada pregunta y por favor **no deje ninguna sin responder.**

11. La alimentación complementaria es:

a	Inicio de la dieta de la familia	b	Inicio de alimentos sólidos y líquidos diferentes a la leche materna	c	Inicio de alimentos semisólidos solamente	d	No sabe

12. ¿Hasta qué edad del niño(a) se le debe dar leche materna como único alimento?

a	Hasta los 6 meses	b	Hasta los 8 meses	c	Hasta los 2 años	d	No sabe

13. ¿Cuántas veces al día debe comer otros alimentos distintos a la leche el niño(a) que inicia la AC?

a	1 vez al día	b	2 a 3 veces al día	c	4 a 5 veces al día	d	No sabe

14. ¿Con qué grupo de alimentos se debe iniciar la alimentación complementaria?

a	Vegetales, cereales, frutas, huevo y carne, progresando	b	Vegetales, frutas y leche de vaca	c	Solamente frutas y vegetales	d	No sabe

Appendix 2. Validation of an instrument to measure knowledge in CF. Instrument for measurement knowledge in complementary feeding in its original language version (Spanish) (continuation)

15. ¿A partir de qué edad el niño puede ingerir los alimentos que consume toda la familia?

a	A partir de los 6 meses	b	A partir de los 8 meses	c	A partir de los 12 meses	d	No sabe

16. Los suplementos nutricionales o multivitamínicos se deben suministrar:

a	A los niños que luzcan delgados y pálidos	b	Solo a los niños que no consumen leche materna	c	Cuando lo indique el personal de salud	d	No sabe

17. La consistencia de la comida del niño(a) según sus meses de edad, es:

a	En puré, papilla o trozos a partir de los 6 meses	b	Solo alimentos líquidos hasta los 12 meses	c	En pequeños trozos a partir de los 8 meses	d	No sabe

18. La forma adecuada para suministrar los alimentos diferentes a la leche materna es:

a	El tetero/biberón	b	Pitillo debido a la consistencia	c	Cucharita, taza o dejar que lo haga por si mismo	d	No sabe

19. El lugar donde se debe dar los alimentos al niño(a) es:

a	En la sala	b	En el comedor	c	En el dormitorio	d	No sabe

20. Los alimentos que evitan que el niño (a) tenga anemia son:

a	Leche y queso	b	Carnes y vísceras	c	Caldos y coladas	d	No sabe

21. Si se le brinda una adecuada alimentación complementaria al niño(a), el beneficio será:

a	Que aumente de peso y luzca rozagante	b	Que tenga una ganancia de peso y talla adecuados	c	Que deje el seno de la madre más temprano	d	No sabe

22. ¿A qué edad del niño(a) finaliza la alimentación complementaria?

a	12 meses	b	18 meses	c	24 meses	d	No sabe

23. La forma adecuada de dar alimentos complementarios es:

a	Permitir que coma solo y experimente con diversas combinaciones y sabores	b	Darle todos los alimentos de forma asistida	c	Darle premios y juegos para que coma	d	No sabe

24. La cantidad de alimentos complementarios que se deben suministrar a los 12 meses es:

a	Hasta que esté totalmente lleno	b	Media taza por comida (125 ml)	c	Una taza por comida (250 ml)	d	No sabe

¡GRACIAS POR SU VALIOSO TIEMPO Y COLABORACIÓN!

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