Conocimientos, prácticas y actitudes de madres cuidadoras sobre la alimentación complementaria en los niños de 6 a 24 meses de edad

Maternal knowledge, practices, and attitudes regarding complementary feeding in children aged 6 to 24 months

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Palabras claves:
madres cuidadoras, conocimiento, actitudes, prácticas, alimentación complementaria.

Resumen

Introducción: es importante destacar que la lactancia materna exclusiva debe ser hasta los 6 meses de edad y posterior dar inicio con la alimentación complementaria. La lactancia materna promueve un crecimiento óptimo y previene la presencia de comorbilidades, su afluencia sobre el desarrollo cognitivo y la prevención temprana de enfermedades crónicas. **Objetivos:** el objetivo del presente estudio es realizar un análisis de los conocimientos, actitudes y prácticas de los cuidadores sobre la alimentación complementaria en los niños de 6 a 24 meses de edad de la parroquia la Paz, provincia del Carchi-Ecuador, con la finalidad del logro en la identificación de mejores prácticas tendientes al fortalecimiento de las categorías planteadas. **Metodología:** se seleccionaron participantes bajo criterios específicos y se analizaron las correlaciones entre variables demográficas y aspectos de la alimentación complementaria mediante diagramas de cajas y el coeficiente de Pearson. **Resultados:** los resultados mostraron diferencias en la comprensión y actitudes entre los grupos de ambos centros. En el CSLP (CSLP), se observó una amplia gama de respuestas en el conocimiento, a diferencia del CSSG (CSSG), donde hubo mayor uniformidad. Las actitudes también variaron, con más variabilidad en CSLP y mayor coherencia en CSSG. Además, se notaron diferencias significativas en las prácticas entre ambos centros. Se identificó una correlación moderada entre prácticas y actitudes, y una relación positiva pero limitada entre conocimiento y prácticas. **Conclusiones:** el test de Chi-cuadrado reveló una relación significativa en conocimientos entre los grupos, mientras que en prácticas y actitudes no se encontraron diferencias significativas. El estudio destaca la importancia de mejorar la educación en alimentación complementaria entre las madres para fomentar hábitos saludables y el bienestar infantil, dada la correlación directa entre el nivel de conocimiento de las madres y sus prácticas alimentarias. **Área de estudio general:** Salud. **Área de estudio específica:** Enfermería. **Tipo de estudio:** revisión bibliográfica.

Keywords:
Mothers caring for infants, knowledge,

Abstract

Introduction: It is important to note that exclusive breastfeeding should be until 6 months of age and then start with

attitudes, practices, complementary feeding

complementary feeding. Breastfeeding promotes optimal growth and prevents the presence of comorbidities, their influence on cognitive development and the early prevention of chronic diseases.**Objectives:**The objective of this study is to carry out an analysis of the knowledge, attitudes, and practices of caregivers about complementary feeding in children from 6 to 24 months of age in the parish of La Paz, province of Carchi-Ecuador, in order to achieve the identification of best practices aimed at strengthening the proposed categories.**Methodology:**Participants were selected under specific criteria and correlations between demographic variables and aspects of complementary feeding were analyzed using box plots and Pearson's coefficient. Results: The results showed differences in understanding and attitudes between the groups of both centers. In the CSLP (CSLP), a wide range of responses was observed in the knowledge, unlike the CSSG (CSSG), where there was greater uniformity. Attitudes also varied, with more variability in CSLP and greater consistency in CSSG. In addition, significant differences in practices were noted between the two centers. A moderate correlation between practices and attitudes was identified, and a positive but limited relationship between knowledge and practices. Conclusions: The Chi-square test revealed a sincere relationship in knowledge between the groups, while no significant differences were found in practices and attitudes. The study highlights the importance of improving complementary feeding education among mothers to promote healthy habits and child well-being, given the direct correlation between mothers' level of knowledge and their eating practices. General Study Area: Health. Specific area of study: Nursing. Type of study: literature review.

Introduction

Complementary feeding aims to meet the nutritional needs of infants for optimal growth and development. Adhering to an adequate diet at this stage of life has an impact on the health, nutritional status, growth and development of children; not only in the short term, but in the medium and long term.(1). The objectives include providing adequate nutritional support, helping the infant's socio-intellectual development, avoiding

micronutrient deficiencies and reducing the risk of developing food allergies.(2)Finally, it is important to note that complementary feeding does not completely replace breast milk. It is important to note that exclusive breastfeeding should be until 6 months of age and then complementary feeding should begin. Breastfeeding promotes optimal growth and prevents the presence of comorbidities, their influence on cognitive development and the early prevention of chronic diseases.(3). From 6 months onwards, breastfeeding is not sufficient to satisfy the nutritional requirements of some infants and supplementary contributions of other foods must be administered, both in quality and quantity.(2). Integration into the family table and diet contributes to psychosocial development and the interrelationship between parents and children.(4). This is why its importance also lies in its contribution to cognitive, neurological, digestive and neuromuscular development.

The objective of this study is to analyze the knowledge, attitudes and practices of caregivers regarding complementary feeding in children from 6 to 24 months of age in the parish of La Paz, province of Carchi-Ecuador, with the aim of identifying best practices aimed at strengthening the proposed categories.

Complementary feeding should be adequate, meaning that foods should be provided in sufficient quantity, frequency and texture to cover the nutritional needs of the child. This is why, from the sixth month of life, a child needs a greater supply of certain nutrients such as iron, calcium, zinc, vitamin A and D.(5)The food provided must be age-related and should be gradual month by month, respecting gastric capacity and energy density.(6). However, a child's growth and development can be hindered if his or her diet does not provide the necessary nutrients. It is important to emphasize care during complementary feeding as it ensures healthy growth, prevents nutritional deficiencies and cultivates good eating habits. The Pan American Health Organization(7)It states that "sensitive and nurturing care requires that parents or caregivers pay attention to, understand, and respond to children's signals in a caring and timely manner according to the child's stage of development." It is important to highlight that the role of the mother in complementary feeding is of fundamental value since her practices or knowledge are directly related to the nutritional outcome of the child.(8).

There are important categories that must be taken into account when caring for children. Knowledge is based on a person deciding what he or she should or can do based on the discoveries acquired in response to a given situation. Knowledge is the progressive and gradual process developed by man to understand his world and develop himself as an individual.(9). Furthermore, knowledge is acquired through experience and interaction with the environment; and it is a tool used for decision-making and problem-solving. Practices in the mother's immediate environment greatly influence her experience with complementary feeding; inadequate feeding practices are the main cause of insufficient nutrient intake in children's diet. This is why practical knowledge and skills must be

adopted; this implies knowledge on which it is possible to evaluate when a practice is well carried out by others.(10). In addition, it allows good practices in the preparation of complementary food by mothers to allow the early development of healthy eating habits and for their nutritional status. Attitudes are recurrent reactions or actions in individuals, also defined as habits which establish a response to a given situation. It refers to the way of acting as the behavior and beliefs that a person has. During the feeding of the child, positive evaluations of the foods that encourage him to eat should be made, taking into account that a pleasant environment stimulates a favorable attitude in the child and a better acceptance towards food.(11).

The Nursing area performs vitally important functions that directly and beneficially contribute to the family and community so that they lead healthy lifestyles. It focuses on educating people with health problems to promote their autonomy and adaptation; directing nursing interventions towards self-care, while making citizens responsible for their own health.(12). In addition, it is responsible for providing assistance and health care at the first level and must guarantee the continuity of care throughout the patient's life.(13)Finally, in order to create effective intervention methods, nursing professionals collaborate with the family and the community to determine their health needs.

Methodology

The study was conducted at the CSLP and CSSG, belonging to the Montúfar Canton-Ecuador. The participants were mothers who care for children 6 to 24 months of age who attend health centers. Inclusion and exclusion criteria were applied to select participants in the study. The inclusion criteria were mothers who attend health checks at the centers and who sign the informed consent. The exclusion criteria were mothers and children who did not belong to the parish and who do not attend the health center and who do not sign the informed consent. The approach and type of study was non-experimental with a quantitative approach of an observational, descriptive, cross-sectional and correlational type; and the study was also descriptive and exploratory. Demographic data was collected from mothers and children. Correlation analysis was performed between the main demographic variables of mothers in relation to knowledge, practices and attitudes about complementary feeding. The representation of the distribution of numerical data of the scores of the categories: Knowledge, Practices and Attitudes, was carried out through the use of box diagrams, also known as boxplot, which is a standardized graphical method that allowed to represent the distribution of numerical data through its quartiles, and allowed to visualize the variability, trends and atypical values of the data. The Pearson coefficient was applied to measure the degree of relationship that existed between the variables. To determine the existence of significant differences between the observed and expected frequencies in the categories under study: Knowledge, Practices and Attitudes, the Chi-square test (χ^2) was applied, which allowed to test the independence or the

association between the categories under study. An instrument was applied to identify maternal knowledge and practices regarding complementary feeding in vulnerable populations. The instrument consists of the first section Knowledge of caregivers of children aged 6 to 24 months on complementary feeding; the second section Practices of caregivers of children aged 6 to 24 months on complementary feeding; and the third section Attitudes of caregivers of children aged 6 to 24 months on complementary feeding. The instrument was validated by experts, according to the validation study carried out by(14),which demonstrated clarity and understanding (97%), and an acceptance rate of over 90% for coherence, clarity and relevance. In its evaluation, it presented an Intraclass Correlation Coefficient of 0.823; 0.888 and 0.508, respectively. The unidimensionality of the tool was demonstrated (Kaiser-Meyer-Olkin = 0.414 and Bartlett's sphericity test = 0.007). The instrument was reviewed and approved by specialists in pediatrics, nutrition and nursing. The results were presented in tables and figures for interpretation. The measurement of the variables: Knowledge, Practices and Attitudes was carried out based on the Stanones scale, where in the Gauss Curve, the intervals for the final and total value category were obtained.

Results

The demographic data of the mothers reveal an age range between 17 and over 40 years old. They are considered to be of mixed ethnicity. They do not have disabilities. The marital status is predominantly single (41.43%), and free union (25.72%). The majority have a secondary education degree (70%). They work part-time (68.57%), and are unemployed (24.29%). They are mostly Ecuadorian nationals. They had a normal birth, and the majority have between 1 and 2 children. They are not affiliated with social security (32.83%) or are subsidized (47.86%).

Table 1

Demographic data of mothers in health centers

Variable	Category	La Paz Health Center (%)	San Gabriel Health Center (%)
Age			
	17 - 20	25.71	5.71
	21-25	42.86	14.29
	26-30	17,14	28.57
	30-40	11.43	34.29
	>40	2.86	17,14
Ethnicity			
	Mestizo	94.29	88.57
	Other	5.71	11.43
Disability	No		

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Marital status			0.00
	Single	57.14	45.71
	Married	11.43	25.71
	Divorced	2.86	5.71
	Free union	28.57	22.86
Degree of instruction			
	Primary	5.71	0.00
	Secondary	71.43	68.57
	Third level	22.86	31.43
Employment status			
	Full time	8.57	5.71
	Part time	68.57	68.57
	Unemployed	22.86	25.71
Nationality			
	Ecuadorian	91.43	88.57
	Colombian	8.57	5.71
	Venezuelan		5.71
Type of delivery			
	Normal	80,00	65.71
	Caesarean section	20,00	34.29
No. Children			
	1	25.71	48.57
	2	37.14	28.57
	3	17,14	22.86
Social security health affiliation			
	Subsidized	57.14	68.57
	Not affiliated	37.14	28.57
	Affiliate	5.71	2.86

Table 2 shows the demographic data of the health centers. The children participating in the study are between 6 and 24 months old. They do not present significant differences in relation to age. In relation to weight, children belonging to the CSSG have a weight between 10 to 13 kg (57.14%), higher than the CSLP (31.43%). And weight between 6 - 9 kg, they present CSLP (62.86%), in relation to the CSSG (34.29%). In relation to height (cm), children from the CSSG predominate with 78 - 82 cm (31.43%) and 83 - 87 cm (40%). In head circumference (cm), the CSSG slightly predominates, between 43 - 46 cm (34.29%) and 47 - 50 cm (57.14%). In the Body Mass Index, CSSG also has a slight majority, between 13 – 16 (60%) and 17 – 20 (34.29%).

Table 2

CSLP and San Gabriel Children's Demographics

| Variable	Category	La Paz Health Center (%)	San Gabriel Health Center%
Age (months)			
	6 - 10	31.43	22.86
	11 - 14	22.86	5.71
	15 - 19	25.71	25.71
	20 - 23	20,00	28.57
	>24	0.00	17,14
Sex			
	Female	45.71	45.71
	Male	54.29	54.29
Weight (kg)			
	6 - 9	62.86	34.29
	10 - 13	31.43	57.14
	>17	5.71	8.57
Size (cm)			
	63 - 67	28.57	11.43
	68 -72	17,14	11.43
	73 - 77	22.86	5.71
	78 - 82	20,00	31.43
	83 - 87	11.43	40,00
Head circumference (cm)			
	35 - 38	2.86	0.00
	39 - 42	14.29	5.71
	43 - 46	40,00	34.29
	47 - 50	42.86	57.14
	51 - 54	0.00	2.86
BMI			
	13 - 16	48.57	60,00
	17 - 20	45.71	34.29
	21 - 24	2.86	5.71
	25 - 28	2.86	0.00

Figure 1

Rating scale for each category
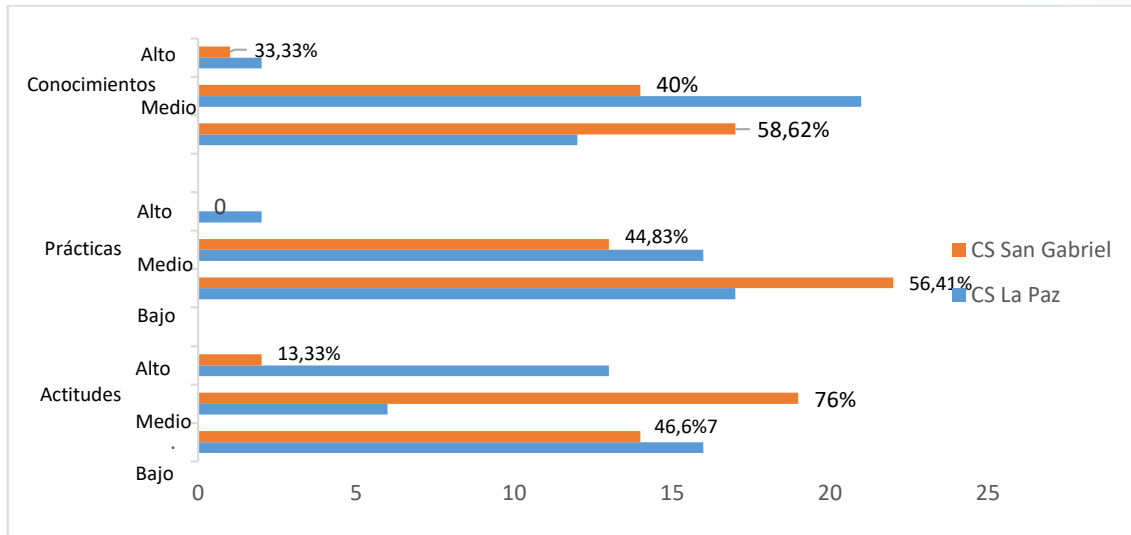
When analyzing scores related to knowledge, attitudes, and practices across groups, distinctive patterns are observed in each category. The CSLP Knowledge group shows pronounced variability in scores, which could indicate a diversity in understanding or familiarity with the assessed material. The CSSG Knowledge scores are more close-knit, which could indicate a consistency in the level of knowledge among its participants. In terms of attitudes, CSLP Attitudes reflects a variability in individual perceptions or assessments, as opposed to CSSG Attitudes, where responses tend to be more uniform, which may reflect a shared perspective or general consensus. In the area of practices, both CSLP Practices and CSSG Practices present comparable ranges of scores, although the variation in CSSG Practices highlights the existence of differences in the implementation of these practices, as presented in Figure 2.

Figure 2

Scores related to knowledge, attitudes and practices
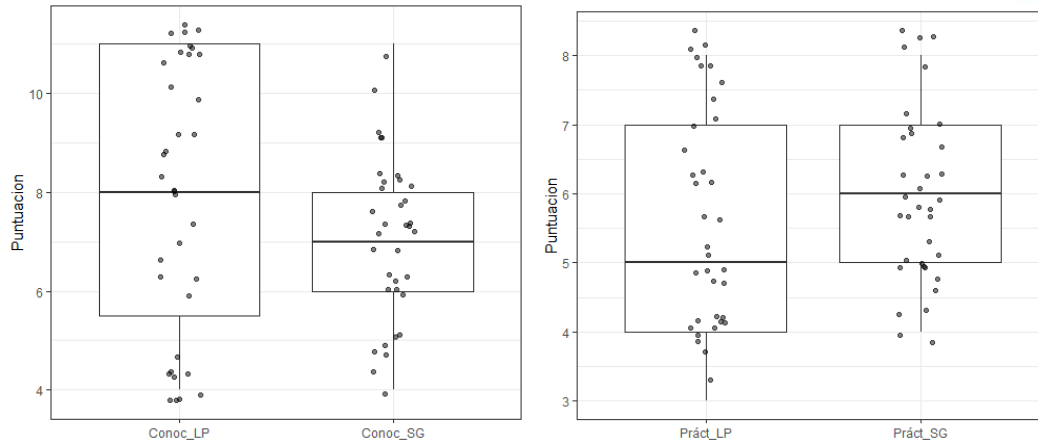
a) Knowledge b) Practices
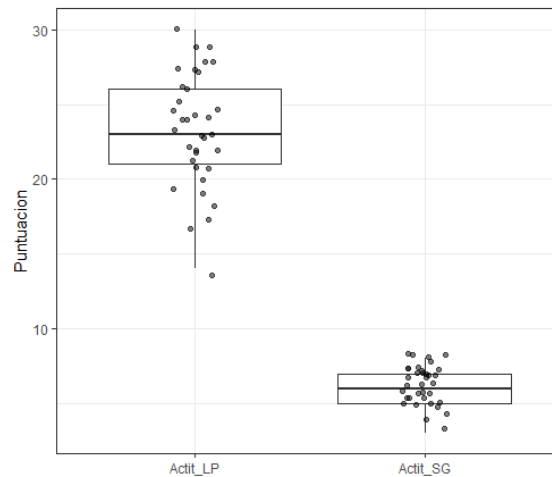
c) Attitudes

Correlation analysis of the three categories of the two health centers

Spearman's correlation method was used to assess the interaction of the three categories under study: Knowledge, Practices and Attitudes. The results indicate a moderate positive correlation between knowledge and practices ($\rho = 0.5$), which indicates that an increase in knowledge tends to be linked to an improvement in the relevant practices. The relationship suggests that a higher level of knowledge in a specific field could promote a more effective implementation of the related practices. Conversely, a moderate negative correlation was detected between knowledge and attitudes ($\rho = -0.5$), which could mean

that an increase in knowledge is often associated with a reduction in the positive evaluation or perception of certain attitudes, possibly indicating that a greater understanding leads to a revision or adjustment of previous attitudes.

Table 3

Spearman correlation values matrix

	Knowledge	Internships	Attitudes
Knowledge	1.00	0.50	-0.50
Internships	0.50	1.00	0.50
Attitudes	-0.50	0.50	1.00

Table 4

Kendall correlation values matrix

	Knowledge	Internships	Attitudes
Knowledge	1.00	0.33	-0.33
Internships	0.33	1.00	0.33
Attitudes	-0.33	0.33	1.00

A moderate positive correlation was found between practices and attitudes ($\rho = 0.5$), suggesting that changes in practices could influence the corresponding attitudes, or vice versa. Kendall's correlation coefficient was also used to analyse the relationship between knowledge, practices and attitudes. A positive, although not particularly strong, correlation was identified between knowledge and practices ($\tau = 0.33$), indicating a tendency towards a direct relationship between these two variables, resulting in a relatively weak relationship. In terms of knowledge and attitudes, a weak negative correlation was found ($\tau = -0.33$), suggesting that increased knowledge could correlate with a reduction in the intensity of certain attitudes, but the relationship is equally limited in strength. Furthermore, the correlation between practices and attitudes was positive and moderately weak ($\tau = 0.33$), indicating a direct, but not particularly significant, connection between them. These findings point to an interaction between knowledge, practices and attitudes, but also highlight the importance of considering other influencing elements in this interaction. The moderate strength of these correlations could imply more complex interactions.

Analysis between categories

When applying the Chi-square test to the matrix called Knowledge, an X2 value of 14.96 was obtained with two degrees of freedom, accompanied by a p-value of 0.0005643. This significant statistical evidence suggests that we can rule out the hypothesis that there is no relationship between the levels of knowledge and the two populations or groups compared in the study. The low probability associated with these observed frequencies implies that independence between the groups is highly improbable, which indicates a statistically relevant association between them. In the analysis carried out with the Chi-square test for the frequencies related to the practices, an X2 value of 2.9514 was calculated with two degrees of freedom and a p-value of 0.2286 was obtained. Since this p-value is higher than the typical significance level of 0.05, there is no statistical basis for

rejecting the hypothesis that there is no significant relationship between the practices and the two groups studied. Therefore, the present results suggest that the variations found in practices between the two groups might not be attributable to systematic differences, but could be the result of random variability. The application of the Chi-square test to the data on 'Attitudes' resulted in a X2 value of 2.466 with two degrees of freedom and a p-value of 0.2914. Since the p-value is above the conventional limit of 0.05, it does not provide sufficient evidence to rule out the null hypothesis of independence between the attitudes and the two groups compared. This implies that the variations observed in attitudes between the groups are statistically insignificant and could be attributed to casual fluctuations rather than systematic differences or direct influences between the variables studied.

Table 5

Correlation analysis of variables in the CSLP and San Gabriel study

Variable	CSLP			CSSG		
	Knowledge	Internships	Attitudes	Knowledge	Internships	Attitudes
Age	-0.1897	-0.0431	-0.1707	0.0832	0.2699	-0.0374
	0.275	0.8059	0.3268	0.6347	0.1169	0.8313
Marital status	-0.2462	0.0106	-0.1644	0.2836	-0.1972	-0.1405
	0.154	0.9518	0.3454	0.0988	0.2562	0.4208
Degree of instruction	0.1118	-0.2476	-0.0354	0.1535	0.628	-0.1074
	0.5224	0.1515	0.8399	0.3786	0.0001	0.539
Employment status	-0.1008	0.2967	0.1072	-0.1972	-0.2558	0.0836
	0.5644	0.0835	0.54	0.2562	0.138	0.6329
No. Children	-0.126	-0.2083	-0.2138	0.1107	0.3159	0.0507
	0.4709	0.2299	0.2175	0.5269	0.0645	0.7725

The analysis presented in the table reflects a statistical study conducted at CSLP, where correlational coefficients and possibly standardized beta coefficients illustrate the strength and direction of associations between sociodemographic variables and three behavioral and perceptual domains: Knowledge, Practices, and Attitudes. The coefficient values range from negative associations, as seen in the Age variable with a coefficient of -0.1897 in Knowledge, to substantial positive associations, evidenced by a coefficient of 0.5644 in Employment Status with Knowledge. The variability in these values implies differences in how sociodemographic characteristics may influence health outlook and behaviors.

These main statistical values, although devoid of explicit statistical significance in this presentation, are indicative of possible trends and patterns in the population studied. For example, the correlation coefficients in the Practices dimension range from -0.2083 to 0.9518, suggesting that certain sociodemographic variables might have a more direct relationship and possibly more influence on health practices. Similarly, the coefficients in the Attitudes dimension range from -0.2138 to 0.8399, which might reflect the differential impact of sociodemographic variables on health attitudes. The data set provided by the CSSG shows numerical correlations between certain sociodemographic variables and three health dimensions: knowledge, practices, and attitudes. The correlation coefficients range, indicating variability in the association of the variables with the health dimensions. For the Knowledge dimension, coefficients range from slightly negative to moderately positive, with the highest coefficient being 0.6347, implying a moderate to strong positive association. In the Practices category, coefficients also present a wide range, from -0.2558 to 0.628, reflecting a mixed influence of sociodemographic variables on health practices. Variability is notable in the Attitudes dimension, with coefficients ranging from -0.1405 to 0.8313, indicating that some variables may have a strong link with health attitudes. Higher coefficients in all categories highlight a proportionally more significant relationship, while lower negative values suggest a possible dissociation or inverse influence of certain variables on the dimensions assessed. Although the coefficients provide clues to possible trends, the absence of information on the statistical significance and context of the variables limits the full interpretation of these results. However, the trends indicated by these coefficients may be instrumental in directing attention to specific factors that could improve health knowledge, practices, and attitudes within the community served by the CSSG.

Generally speaking, they are presented on a scale from -1 to +1, where +1 indicates a perfect positive correlation, -1 indicates a perfect negative correlation, and 0 indicates no correlation. Values close to +1 or -1 suggest a strong association, while values close to 0 suggest a weak association.

CSLP

Age with knowledge: a weak negative correlation (-0.1897) suggests that the older the person, the slightly lower the level of knowledge, although the association is weak and may not be significant. With practices: a very weak negative correlation (-0.0431) suggests an almost non-existent association between age and practices. With attitudes: a weak negative correlation (-0.1707) indicates that, with increasing age, there may be a tendency to have slightly less positive attitudes. Marital status: with knowledge: a weak positive correlation (0.275) suggests that changes in marital status may be slightly associated with an increase in knowledge. With practices: a moderate positive correlation (0.8059) indicates a significant association between marital status and practices

undertaken. With attitudes: a weak positive correlation (0.3268) indicates that different marital statuses may slightly influence a more positive attitude. Educational level: with knowledge: the correlation is positive but weak (0.1118), suggesting that a higher educational level may be slightly associated with greater knowledge. With practices: A weak negative correlation (-0.2476) suggests a weak association where higher levels of education might be slightly related to less practices. With attitudes: A very weak negative correlation (-0.0354) indicates that there is no clear association between educational level and attitudes.

CSSG

Age: With knowledge: a weak positive correlation (0.0832) suggests a mild association, indicating that, with increasing age, there may be a minimal increase in knowledge. With practices: a moderate positive correlation (0.2699) suggests that, with increasing age, there is a tendency to perform more health-related practices. With attitudes: a weak negative correlation (-0.0374) indicates that there is no significant association between age and attitudes, although the direction of the correlation is negative. Marital status: With knowledge: the moderate positive correlation (0.6347) suggests a significant association, possibly indicating that married people or people in stable relationships may have a higher level of health knowledge. With practices: a weak positive correlation (0.1169) suggests that marital status has a slight influence on the performance of health practices. With attitudes: a strong positive correlation (0.8313) highlights a significant association, where marital status seems to have a notable impact on attitudes towards health. Educational attainment: With knowledge: a weak positive correlation (0.1535) suggests that with higher educational attainment there is a slight increase in health knowledge. With practices: a moderate correlation (0.628) suggests a fairly strong relationship between educational attainment and performance of health practices. With attitudes: a weak negative correlation (-0.1074) suggests a slight decrease in positive attitudes with higher educational levels, although this relationship is weak.

The research found that mothers with a broader knowledge of Complementary Feeding (CF) are more likely to adopt appropriate practices in this area. This conclusion is consistent with the findings of other studies, which have identified a significant correlation between the degree of knowledge of mothers in nutrition and their eating habits. These results have been supported by several authors in previous research, including(14) (15) (16) (17) (18) (19). Although knowledge is considered average in the two Health Centers, this study revealed that a percentage of mothers showed inadequate knowledge, practices and attitudes regarding the importance of Complementary Feeding (CF); this is corroborated by what was stated by(20), where they found that AC practices in children between 6 and 24 months were not appropriate in 49.3% of cases. The studies carried out by(21) (22) (23), mention acceptable data on complementary feeding.

Similarly(9), observed a notable relationship between the mothers' knowledge and their eating practices, although these tended to be insufficient. Cabrera(23)The authors reported limited knowledge among mothers about when to start complementary feeding. Together, these studies highlight the need for effective educational programmes and reveal significant gaps in current knowledge and practices regarding complementary feeding.Espinoza & Silva (24), surveyed 58 mothers using two expert-validated questionnaires, and found that 47% of them had average knowledge, 41% had low knowledge, and only 12% had high knowledge. In addition, it was observed that approximately 60% (35 mothers) practiced complementary feeding inadequately, while 40% did so appropriately.

Conclusions

- Mothers considered in the study from the two health centers have average knowledge about complementary feeding, although there is a considerable proportion with a low level of understanding on this topic. This could present a constant scenario for children in their development. The research reveals a clear trend: there is a significant relationship between the level of knowledge, attitudes of mothers and their feeding practices. Insufficient or average knowledge frequently leads to inappropriate practices, while greater understanding is associated with more appropriate practices. These findings highlight the critical need to improve education and support in complementary feeding, emphasizing that reinforcing mothers' knowledge in this field is essential to promote healthy feeding practices and improve child well-being. The correlations found in both health centers suggest various associations between demographic variables and knowledge, practices and attitudes about health. These associations could inform targeted interventions and public health policies to improve children's overall health outcomes.

Conflict of interest

The authors declare that they have no conflict of interest in relation to the submitted article.

Authors' contribution statement

The authors contributed equally to the preparation of the article.

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