ISSN: 2318-8413 DOI: 10.18554/refacs.v9i3.4713

REFACS

Food insecurity in families of children vertically exposed to HIV*

Insegurança alimentar em famílias de crianças verticalmente expostas ao HIV

Inseguridad alimentaria en familias de niños expuestos verticalmente al VIH

Received: 29/06/2020
Approved: 10/02/2021
Published: 18/06/2021

Clécia de Oliveira Sampaio[1]
Marília Alessandra Bick[2]
Vanessa Ramos Kirsten[3]
Stela Maris de Mello Padoin[4]
Cristiane Cardoso de Paula[5]

This is a quantitative analytical cross-sectional study, with non-probabilistic sampling for convenience carried out in the municipality of Santa Maria, RS, Brazil, from February 2016 to June 2018. It aimed to analyze the occurrence of food insecurity in the homes of families with children exposed to HIV and associated factors. The short version of the *Escala Brasileira de Insegurança Alimentar* (Brazilian Food Insecurity Scale), characterization of family members and children's anthropometric data were used. 88 family members were interviewed: 52.2% of these families suffered from food insecurity. A family income equivalent to less than one minimum wage ($p < 0.001$), to consider it moderately difficult to maintain the monitoring of the child's health ($p = 0.009$), to take the child to less than eight medical appointments in the last year ($p = 0.011$), and to be absent in consultations ($p = 0.030$) were factors significantly associated with food insecurity. There was no association with the children's nutritional status. Expansion of access and longitudinality in services is suggested to favor health care for exposed children.
Descriptors: HIV; Infectious disease transmission, Vertical; Food and nutrition security; Infant nutrition; Family.

Este é um estudo quantitativo transversal analítico, com amostragem não probabilística por conveniência, realizado no município de Santa Maria - RS, entre fevereiro de 2016 a junho de 2018, com o objetivo de analisar a ocorrência de insegurança alimentar nos domicílios de famílias com crianças expostas ao HIV e fatores associados. Utilizou-se a Escala Brasileira de Insegurança Alimentar versão curta, caracterização dos familiares e dados antropométricos das crianças. Foram entrevistados 88 familiares: 52,2% dessas famílias apresentavam insegurança alimentar. Uma renda familiar menor que um salário mínimo ($p<0,001$), consideram moderadamente difícil manter o seu acompanhamento em saúde ($p=0,009$), realizaram menos de oito consultas da criança no último ano ($p=0,011$), e o absenteísmo nas consultas ($p=0,030$) foram significativamente associadas à insegurança alimentar. Não houve associação com o estado nutricional das crianças. Sugere-se ampliação do acesso e longitudinalidade nos serviços para favorecer os cuidados à saúde das crianças expostas.
Descritores: HIV; Transmissão vertical de doença infecciosa; Segurança alimentar e nutricional; Nutrição do lactente; Família.

Este es un estudio cuantitativo transversal analítico, con muestreo no probabilístico de conveniencia realizado en el municipio de Santa María, RS, Brasil, entre febrero de 2016 a junio de 2018, con el objetivo de analizar la ocurrencia de inseguridad alimentaria en hogares con niños expuestos al VIH y factores asociados. Se utilizó la Escala Brasileña de Inseguridad Alimentaria - versión corta, la caracterización de los miembros de la familia y los datos antropométricos de los niños. Fueron entrevistados 88 familiares; el 52,2% de estas familias presentaban inseguridad alimentaria, ingresos familiares menores a un salario mínimo ($p<0,001$), consideran moderadamente difícil mantener su seguimiento en salud ($p=0,009$), realizaron menos de ocho consultas del niño en el último año ($p=0,011$) y el absentismo en las consultas ($p=0,030$) estaban significativamente asociados la inseguridad alimentaria. No hubo asociación con el estado nutricional de los niños. Se sugiere ampliar el acceso y la longitudinalidad de los servicios para favorecer la atención a la salud de los niños expuestos.
Descriptores: VIH; Transmisión vertical de enfermedad infecciosa; Seguridad alimentaria y nutricional; Nutrición del lactante; Familia.

*This article is part of the matrix project entitled *Avaliação da capacidade familiar para cuidar de crianças expostas ao HIV*, which received incentives for research from the *Conselho Nacional de Desenvolvimento Científico e Tecnológico* - CNPq (National Council for Scientific and Technological Development) by Edital Universal MCTIC/CNPq No. 01/2016; of the CNPq/MCTIC Call No. 016/2016 Food and Nutritional Security in the framework of UNASUR; and the Fundação de Amparo à Pesquisa do Estado do Rio Grande do Sul (FAPERGS) Call No. 03/2017 Research Program for SUS FAPERGS/MS/CNPq/SESRS.

1. Nutritionist. Master in Nursing. Specializing in Nutrition by the Health Surveillance Board, Porto Alegre, RS, Brazil. ORCID: 0000-0003-2303-1590 E-mail: sampaioclecia@yahoo.com.br
2.Nutritionist. Specialist in School Food nutrition. Master in Nursing. PhD student at the Post-graduate Program in Nursing (PPGE) at the Universidade Federal de Santa Maria (UFSM) Santa Maria, RS, Brazil. ORCID: 0000-0002-8744-7790 E-mail: mariliabick@gmail.com
3. Nutritionist. Specialist in Food and Nutrition in Primary Care. Master in Medicine and Health Sciences. PhD in Child and Adolescent Health. Associate Professor of the Nutrition course at UFSM, Santa Maria, RS, Brazil. ORCID: 0000-0002-6737-1039 E-mail: kirsten.vr@gmail.com
4. Nurse. Specialist in Pedagogy of Medical-Surgical Nursing. Master, PhD and post-doctorate degree holder in Nursing. Associate Professor at PPGE and Nursing Department at UFSM, Santa Maria, RS, Brazil. ORCID: 0000-0003-3272-054X E-mail: stelamaris_padoin@hotmail.com
5. Nurse. Specialist in Pediatric Nursing. Specialist in Child and Adolescent Health. Master, PhD and post-doctorate degree holder in Nursing. Associate Professor at PPGE and the Nursing Department at UFSM, Santa Maria, RS, Brazil. ORCID: 0000-0003-4122-5161 E-mail: cristiane.paula@ufsm.br

INTRODUCTION

The practice of not breastfeeding is associated with inadequate infant feeding, nutritional and immunological deficits[1], which increase the risk of delayed growth and child development and can have a long-term impact on health. However, breastfeeding is not recomended for infants with vertical exposure to the Human Immunodeficiency Virus (HIV), which makes them vulnerable to food insecurity. Thus, these infants make up a priority population group to guarantee the human right to adequate food[2,3].

Due to the maternal clinical condition and the use of infant formula, there is a need for guidance and monitoring of dietary practices and growth parameters in the population of children exposed to HIV, especially in the first thousand days of life[4,5]. The interventions converge with Goals 2 (zero hunger and sustainable agriculture) and 3 (good health and well-being) of the Sustainable Development Goals[6].

Food Insecurity is defined as the situation in which people, at any time, do not have access to sufficient, safe and nutritious food, that meet their nutritional needs for an active and healthy life, and can have an important impact with the growth of these children[3].

A study pointed out programmatic vulnerability to food insecurity in children exposed to HIV and demonstrated that three factors can increase or decrease this vulnerable condition: food options, knowledge of attitudes and practices of professionals and service structure[7]. As risk factors: bureaucracy for free access to infant formula, failure to follow guidelines for good feeding practices, stigma, changes in guidelines, access to different services and insufficient inputs[7].

When considering the family as co-responsible for the children's health, parents should be the focus of the guidelines for preparation and administration of the infant formula and in the beginning of healthy complementary feeding. Therefore, it is essential that they have the knowledge and conditions for such a practice, including: basic sanitation, access to infant formula and adequate food and in enough quantity for each stage of the child's life[8].

Knowing whether families have food security can be a determining factor for their better care and coping with the disease. Thus, this study aims to analyze the occurrence of food insecurity in the homes of families with children exposed to HIV and associated factors.

METHODS

Cross-sectional analytical study with non-probabilistic sampling for convenience carried out in the city of Santa Maria, in the state of Rio Grande do Sul, Brazil. The participants were relatives of children exposed to HIV. As an inclusion criterion, the participant should be the family member responsible for following the daily routine of children up to 18 months of age vertically exposed to HIV being monitored at a university hospital (UH). Institutionalized children were excluded from the study, considering that they do not have a primary caregiver.

In order to compose a list of potential participants, the notification forms of HIV-infected pregnant women and exposed children and an appointment schedule at the UH service were accessed. For those with NO consultations, contact was made via telephone. The data collection occurred between February 2016 and June 2018.

For the evaluation of food insecurity, a short scale proposal was used, based on the *Escala Brasileira de Insegurança Alimentar* - EBIA[9] (Brazilian Food Insecurity Measurement Scale), composed by five questions with dichotomous answers (yes and no). The presence of a positive answer represents the occurrence of food insecurity at home. The associated factors evaluated were: characteristics of the population (child and family), care and nutritional status.

A tool was applied containing the variables "*child*" (weight and height, prematurity, medication use, type of infant formula and frequency of administration and complementary feeding and frequency)[10], "*family member*" (gender, age, marital status, education, monthly family income, number of people sharing that income, number of children, municipality and

area of residence, employment situation, use of alcohol or drugs, health condition, serological condition, route of infection, time of diagnosis, treatment for HIV and degree of difficulty maintaining follow-up) and "*care*" (kinship with child, siblings exposed to HIV, child monitoring health service, age at first infectious disease care, number of consultations, absenteeism in consultations, degree of difficulty to maintain monitoring of child, to know and access closest primary care services when necessary). Weight and height data were collected from medical records.

To assess the nutritional status of full-term children, the Body Mass Index/Age indicator (BMI/I) was used, in the WHO Anthro software version 3.2.2, and classified according to child growth patterns[11]. For premature infants, Weight/Age (W/A), Height/Age (E/I) scores were used using the INTERGROWTH-21st Postnatal Growth of Preterm Infants calculator.

Data analysis was performed in the Statistical Package for the Social Sciences 22.0 (SPSS), using Pearson's Chi-square test to verify the relationship of the variables of the child, the family member and the care with food security and nutritional status. The level of significance adopted was 5% ($p < 0.05$).

The study was approved by the Research Ethics Committee of the Universidade Federal de Santa Maria (50609615.1.0000.5346), and the participants signed a Free and Informed Consent Form. The surveillance team and the specialized service in which the children are monitored agreed to keep in touch, in order to get the results of the research and develop the active search of the families to conclude the outcome of the vertical exposure to HIV and the referral of cases of food insecurity, considering the reports of difficulty in care and access.

RESULTS

88 people participated, mostly women (97.7%), mothers (95.4%), over 30 years old (n = 41; 46.6%), with a high school degree (53.4%), unemployed (63.7%), who shared their family income between 3 and 5 people (69.3%) and who had between 2 and 4 children (59.1%). It was observed that the majority did not consume alcohol (64.8%) or drugs (96.6%), were infected with HIV (96.6%) and underwent treatment (88.6%).

Regarding the children's information, most did not have siblings exposed to HIV (60.2%), were on infant formula (67.0%) and received complementary food (82.9%). The frequency of food supply was inappropriate for age, both for infant formula (n = 72; 81.8%) and for complementary food (61.3%). According to the assessment of the body mass index for age (BMI/I), most children were eutrophic (79.6%). The relationship between sociodemographic and clinical variables of the family member with food insecurity is described in Table 1.

The prevalence of food insecurity found in these families was 52.2%. A family member without a partner ($p = 0.022$), family income below one minimum wage ($p < 0.001$), moderate difficulty to maintain health monitoring ($p = 0.009$), attendance to less than eight consultations in the last year ($p = 0.011$), absenteeism in the child's follow-up visits ($p = 0.030$) and inadequate frequency of feeding with infant formula ($p = 0.033$) were the variables significantly associated with food insecurity.

As for the family's access to food at home in the last three months, the assertions of the food insecurity scale used indicated that there was concern of families about runnig out of food before being able to purchase more (44.3%, n = 39) and there were lack of food at home in 28.4% (n = 25) of the assessed families. Due to financial resources restrictions, 40.9% (n = 36) of families did not have a healthy and varied diet and some adult (n = 27; 30.6%) or the family member of reference (n = 22; 25.0%) had to reduce the amount of food consumed or skipp meals althogether. The relationship between the child's nutritional status and food insecurity is described in Table 2.

Table 1. Association of sociodemographic and clinical variables of family members and children exposed to HIV and food insecurity. Santa Maria - RS, 2018.

Sociodemographic and clinical variables of the relative	N evaluated	Food insecurity	P
Marital status			0.022
Lives with partner/spouse	62	27 (43.5)	
No partner	26	19 (73.1)	
Family income			<0.001
Less than 1 minimum wage (≤ R$ 879.00)	26	22 (84.6)	
Between 1 and 2 minimum wage (R$ 880.00 – 1760.00)	37	21 (56.8)	
More than 2 minimum wage (≥ R$ 1761.00)	25	3 (12.0)	
How is it for you to maintain the monitoring?			0.009
Difficult	14	10 (71.4)	
Milddling	22	16 (72.7)	
Easy	49	19 (38.8)	
No. of medical consultations the child had in the last year?			0.011
1-4	48	25 (52.1)	
5-8	25	18 (72.0)	
9-12	11	2 (18.2)	
Did the child miss any consultation in the last year?			0.030
Yes	18	14 (77.8)	
No	70	32 (45.7)	
Frequency of feeding with formula			
Adequate	16	4 (25.0)	0.033
Inadequate	72	42 (58.3)	

Note: Pearson's Chi-square test with Yates correction or Fisher's exact test. Significant values for p <0.05.

Table 2. Association of the nutritional status of children vertically exposed to HIV and food insecurity. Santa Maria - RS, 2018.

Classificação de Índice de massa corporal	No. Evaluated	Food insecurity	P
In the last 3 months, did you worry that the food in your house would run out before you were able to buy, receive or produce more food?			0.86
Eutrophy/Thinness	60	28 (46.7)	
Risk of becoming overweight/overweight	15	6 (40.0)	
In the last 3 months, did you run out of food before you had enough money to buy more?			0.999
Eutrophy/Thinness	60	19 (31.7)	
Risk of becoming overweight/overweight	15	4 (26.7)	
In the last 3 months, there was not enough money to provide a healthy and varied diet?			0.999
Eutrophy/Thinness	60	24 (40.0)	
Risk of becoming overweight/overweight	15	6 (40.0)	
In the past 3 months, did you or any adult in your household ever decrease the amount of food in the meals, or skip meals, because there was not enough money to buy food?			0.749
Eutrophy/Thinness	60	16 (26.7)	
Risk of becoming overweight/overweight	15	5 (33.3)	
In the past 3 months, did you ever eat less than you thought you should because there was not enough money to buy food?			0.999
Eutrophy/Thinness	60	13 (21.7)	
Risk of becoming overweight/overweight	15	3 (20.0)	

Note: Pearson's Chi-square test Significant values for p <0.05.

The analysis of children's insecurity and nutritional status did not show a statistically significant association.

With the factors associated with food insecurity in the bivariate analysis, a multivariable analysis of Poisson Regression with Robust Variance was performed. After adjusting the model, the variables that remained associated with food insecurity were lower income, difficulty in keeping up with the child's monitoring, lower frequency of consultations, and the missing an appointment. The frequency of adequate infant formula consumption, despite being at the limit of statistical significance (p=0.052), seems to have a tendency to protect against food insecurity. These results are shown in Table 3.

Table 3 - Factors associated with food insecurity after adjusting the statistical model. Santa Maria - RS, 2018.

Sociodemographic and clinical variables of the relative	RP adjusted (IC95%)	P
Marital status		
Lives with partner/spouse	0.97 (0.71-1.32)	0.849
No partner	1,0	
Family income		
Less than 1 minimum wage (≤ R$ 879.00)	3.87 (1.28-11.67)	**0.016**
Between 1 and 2 minimum wage (R$ 880.00 – 1760.00)	3.12 (1.03-9.43)	**0.044**
More than 2 minimum wage (≥ R$ 1761.00)	1,0	
How is it for you to keep the monitoring		
Hard	2.21 (1.52-3.19)	**<0.001**
Easy	1.19 (0.87-1.65)	0.280
Middling	1,0	
No. of medical consultations the child had in the last year?		
1-4	3.54 (1.42-8.79)	**0.006**
5-8	3.25 (1.31-8.09)	**0.011**
9-12	1,0	
Did the child miss any consultation in the last year?		
Yes	1.68 (1.23-2.29)	**0.001**
No	1,0	
Frequency of feeding with infant formula		
Adequate	0.49 (0.24-1.01)	0.052
Inadequate	1,0	

Note: PR: prevalence ratio; IC95%: confidence interval 95%. RP and P values obtained by Poisson regression with robust variance.

DISCUSSION

It is believed that the social conditions experienced by families are determinants of the effective feeding practices of children exposed to HIV and, consequently, in the food security of these families. Assessing factors related to this condition can guide professionals and services to assist in the management of this demand, mainly in an intersectoral manner.

In the present study, food insecurity in the homes of children exposed to HIV was associated with a family member without a partner. In other studies carried out in the Northeast region of Brazil, this association was not found for adults with HIV[12,13]. Outside of Brazil, studies in Africa have shown significant trends towards a risk of food insecurity when the head of the family is single[14,15]. This allows us to infer that joint attempts to meet the family's food needs increase the chances of food security. Marital status may increase income and/or support for daily activities. However, it is considered that the environment of these children is influenced by prejudice and concealment of the diagnosis, which can favor social isolation[16]. This indicates the need to strengthen the support network for families to promote food security for children exposed to HIV.

Food insecurity was also associated with family income below the minimum wage; which corroborates other Brazilian studies, in which people living with HIV who have a monthly family income equivalent to less than 1.5 minimum wages were at greater risk of food insecurity[13], and the *per capita* income equivalent to less than half the minimum wage increased by 83.1 % the prevalence of moderate or severe food insecurity[12]. The restriction of financial resources and social inequalities imply an obstacle to adequate food, exposing families to nutritional disorders, as well as access to health, education and housing. The need for investments in the areas of child health and nutrition with income generation and education strategies is pointed out.

There was also an association with food insecurity when the family member considered it moderately difficult to maintain the child's health monitoring. A study in the Western United States investigated the relationship of food insecurity and clinical outcomes related to HIV, and concluded that food insecurity is associated with reduced access to specialized services[17].

While food insecurity has been shown to be distant from health care, there is evidence of food security as a protective effect on clinical monitoring[18]. In the present study, food insecurity was associated with the child's attendance at less than eight medical consultations in the last year and absenteeism, which expresses the need for services to program a way to monitor absenteeism and strategies that bring families together to give follow-up to professional care until the outcome of the child's serological situation. Services must be able to identify and manage children's health disparities early and in a timely manner[19], especially with regard to food.

Another statistically significant variable in the prevalence of food insecurity was the inadequate frequency of feedings with infant formula. The supply of food to these children was mostly classified as inadequate for both the frequency of feeding with infant formula and complementary feeding. This result was similar to that described in other national and international productions.

An investigation carried out in Northeastern Brazil identified 57.8% of children exposed to HIV with inadequate infant formula consumption (dilution and frequency) and 64.5% were old enough to introduce complementary feeding; however, 25% of these still consumed only infant formula[20]. A study carried out in South Africa showed that, at six months of age, 100% of exposed children received the appropriate frequency of infant formula, reducing to 80% at 12 and 18 months of age[21]. It is inferred that the occurrence of food insecurity in the households exposes children to the inadequate frequency of feeding with infant formula and to the late and insufficient introduction of complementary feeding. Thus, it is not enough to have free access to infant formula by the Unified Health System (SUS), there is a need for clarification to correct inappropriate practices, which may cause changes in nutritional status.

The correlation between food insecurity and nutritional status of children exposed to HIV was not statistically significant. It is likely because such a relationship may be more complex due to determinants such as the child's age, food consumption, medications used, time of illness and income. In middle or low income countries, food insecurity can be related to nutritional deficits and in developed nations with overweight.

The anthropometric and dietary profile of children aged 0 to 18 months exposed to HIV, there was a predominance of eutrophy/adequacy in children linving in Northern Brazil. They had a23% risk of thinness, 15% of short stature and 8% of overweight[22]. In Southern Africa, however, no infant exposed to HIV had low birth weight at 6, 12 and 18 months[21]. On the other hand, research that compared the longitudinal growth of exposed and unexposed children showed that overweight was common in both groups at 12 months[23].

Thus, monitoring children exposed to HIV is important to identify possible risk situations and anthropometric changes and early intervention to promote child development or reestablish nutritional status, when inadequate.

The participation of family members of children monitored in a single health institution may restrict generalization of results, as they receive specialized care of an institutional standard. Therefore, the matrix research project was extended to other municipalities in the interior of the state of Rio Grande do Sul on the list of 100 Brazilian municipalities with more than 100,000 inhabitants, which had the highest composite HIV rates, in the epidemiological bulletin of HIV of the Ministry of Health and thus, in the future, these factors can be analyzed in a random sample.

CONCLUSION

The biological mother is, for the most part, the family member of reference for the care of children exposed to HIV. There was a prevalence of food insecurity at home when the income was inferior to minimum wage, the family member considers it moderately difficult to maintain the monitoring of their health and absenteeism in the child's medical consultations.

The limitations of this study include convenience sampling, which sample variability has not been pre-established and the use of a short scale proposal for food insecurity. The scale used has limitations in relation to the Brazilian Food Insecurity Measurement Scale, it is not specific for families with children and, therefore, it does not measure this factor in its results, making it difficult to identify groups by risk levels.

However, regardless of the size of the short version used, the models showed high sensitivity and specificity when compared to the Brazilian Food Insecurity Measurement Scale, a method considered the gold standard. Furthermore, the proposed models were accurate in measuring the prevalence of food insecurity, showing results similar to those found by the original version. The short proposal was chosen because it facilitated (time and resources) the measurement of food insecurity.

Thus, it is suggested the expansion of access and longitudinality in health services, monitoring of nutritional status and strategies to guide timely, safe and adequate dairy and complementary feeding practices, reducing food insecurity and favoring child development.

REFERENCES

1. Silva DI, Larocca LM, Chaves MMN, Mazza VA. Vulnerabilidade no desenvolvimento da criança: influência das iniquidades sociais. Rev Bras Promoç Saúd. [Internet]. 2015 [cited in 26 Aug 2019]; 28(1):58-66. Available from: https://periodicos.unifor.br/RBPS/article/view/3141/pdf DOI: https://doi.org/10.5020/18061230.2015.p58

2. Shawar YR, Shiffman J. Generation of global political priority for early childhood development: the challenges of framing and governance. Lancet [Internet]. 2017 [cited in 26 Aug 2019]; 389(10064):119-24. DOI: https://doi.org/10.1016/S0140-6736(16)31574-4

3. Food and Agriculture Organization of the United Nations. The state of food security and nutrition in the world 2019: safeguarding against economic slowdowns and downturns. Geneva: WHO; 2019. 239p. Available from: https://docs.wfp.org/api/documents/WFP-0000106760/download/?_ga=2.146261364.11207383.1612289862-1744217715.1612289862

4. Black MM, Walker SP, Fernald LCH, Andersen CT, DiGirolamo AM, Lu C, et al. Early childhood development coming of age: science through the life course. Lancet [Internet]. 2017 [cited in 26 Aug 2019]; 389(10064):77-90. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5884058/pdf/nihms952170.pdf DOI: https://doi.org/10.1016/S0140-6736(16)31389-7

5. Richter LM, Daelmans B, Lombardi J, Heymann J, Boo FL, Behrman JR, et al. Investing in the foundation of sustainable development: pathways to scale up for early childhood development. Lancet [internet]. 2017 [cited in 26 Aug 2019]; 389(10064):103-18. Available from: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)31698-1/fulltext DOI: https://doi.org/10.1016/S0140-6736(16)31698-1

6. United Nations. Transforming our world: the 2030 Agenda for Sustainable Development. New York: United Nations; 2015. 41p. Available from: https://sdgs.un.org/2030agenda

7. Bick MA, Paula CC. Vulnerabilidade programática para insegurança alimentar de crianças expostas ao HIV: revisão integrativa. REFACS [internet]. 2020 [cited in 26 Mar 2020] 8(1):100-13. Available from: http://seer.uftm.edu.br/revistaeletronica/index.php/refacs/article/view/4404/pdf DOI: https://doi.org/10.18554/refacs.v8i1.4404

8. Muehlhoff E, Wijesinha-Bettoni R, Westaway E, Jeremias T, Nordin S, Garz J. Linking agriculture and nutrition education to improve infant and young child feeding: lessons for future programmes. Matern Child Nutr. [Internet]. 2017 [cited in 26 Aug 2019]; 13(Suppl 2):1-12. Available from:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6865961/pdf/MCN-13-e12411.pdf DOI: https://doi.org/10.1111/mcn.12411
9. Santos LP, Lindemann IL, Motta JVS, Mintem G, Bender E, Gigante DP. Proposta de versão curta da Escala Brasileira de Insegurança. Rev Saúde Pública [Internet]. 2014 [cited in 26 Aug 2019]; 48(5):783-9. Available from: https://www.scielo.br/pdf/rsp/v48n5/pt_0034-8910-rsp-48-5-0783.pdf. DOI: https://doi.org/10.1590/S0034-8910.2014048005195
10. Ministério da Saúde (Br), Secretaria de Atenção à Saúde, Departamento de Atenção Básica. Saúde da criança: aleitamento materno e alimentação complementar. Brasília, DF: Ministério da Saúde; 2015. 186p. Available from: https://bvsms.saude.gov.br/bvs/publicacoes/saude_crianca_aleitamento_materno_cab23.pdf
11. World Health Organization Multicentre Growth Reference Study Group. WHO Child Growth Standards: length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age: methods and development. Geneva: WHO; 2006. 336p. Available from: https://www.who.int/publications/i/item/924154693X
12. Medeiros ARC, Lima RLFC, Medeiros LB, Trajano FMP, Salerno AAP, Moraes RM, et al. Insegurança alimentar moderada e grave em famílias integradas por pessoas vivendo com HIV/Aids: validação da escala e fatores associados. Ciênc Saúde Colet. [Internet]. 2017 [cited in 26 Aug 2019]; 22(10):3353-64. q Available from: https://www.scielo.br/pdf/csc/v22n10/1413-8123-csc-22-10-3353.pdf. DOI: https://doi.org/10.1590/1413-812320172210.02462017
13. Costa LNF, Braga MM, Rocha M, Campêlo WF, Vasconcelos CMCS. Fatores associados à insegurança alimentar em pessoas que vivem com HIV/AIDS. Rev Bras Promoç Saúde [Internet]. 2018 [cited in 26 Aug 2019]; 31(1):1-8. Available from: https://periodicos.unifor.br/RBPS/article/view/6884/pdf DOI: https://doi.org/10.5020/18061230.2018.6884
14. Tantu AT, Gamebo TD, Sheno BK, Kabalo MY. Household food insecurity and associated factors among households in Wolaita Sodo town, 2015. Agric Food Secur. [Internet]. 2017 [cited in 26 Aug 2019]; 6(19):1-8. Available from: https://agricultureandfoodsecurity.biomedcentral.com/articles/10.1186/s40066-017-0098-4. DOI: https://doi.org/10.1186/s40066-017-0098-4
15. Sekhampu J. Association of Food Security and Household Demographics in a South African Township. Int J Soc. [Internet]. 2017 [cited in 26 Aug 2019]; 9(2):157-70. Available from: http://static.dergipark.org.tr/article-download/a9ea/e3f3/35d8/imp-JA85UT42RF-0.pdf?
16. Alvarenga WA, Galvão MTG, Nascimento LC, Beretta MIR, Dupas G. Rede social fragilizada: a experiência do cuidador da criança nascida exposta ao HIV. Texto & Contexto Enferm. [Internet]. 2015 [cited in 26 Aug 2019]; 24(3):775-83. Available from: https://www.scielo.br/pdf/tce/v24n3/pt_0104-0707-tce-24-03-00775.pdf DOI: https://doi.org/10.1590/0104-07072015011160014
17. Young S, Wheeler AC, McCoy SI, Weiser SD. A review of the role of food insecurity in adherence to care and treatment among adult and pediatric populations living with HIV and AIDS. AIDS Behav. [Internet]. 2014 [cited in 26 Aug 2019]; 18(5):505-15. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3888651/pdf/nihms504711.pdf. DOI: https://doi.org/10.1007/s10461-013-0547-4
18. Fielden SJ, Anema A, Fergusson P, Muldoon K, Grede N, Pee S. Measuring food and nutrition security: tools and considerations for use among people living with HIV. AIDS Behav. [Internet]. 2014 [cited in 26 Aug 2019]; 18(Suppl 5):S490–S504. Available from: https://link.springer.com/article/10.1007/s10461-013-0669-8 DOI: https://doi.org/10.1007/s10461-013-0669-8
19. Ramokolo V, Goga AE, Slogrove AL, Powis KM. Unmasking the vulnerabilities of uninfected children exposed to HIV. BMJ [Internet]. 2019 [cited in 26 Aug 2019]; 366(14479):1-4. Available from: https://www.bmj.com/content/bmj/366/bmj.l4479.full.pdf DOI: https://doi.org/10.1136/bmj.l4479
20. Freitas JG, Cunha GH, Lemos LA, Barroso LMM, Galvão MTG. Alimentação de crianças nascidas expostas ao vírus da imunodeficiência humana. Texto & Contexto Enferm. [Internet]. 2014 [cited in

26 Aug 2019]; 23(3):617-25. Available from: https://www.scielo.br/pdf/tce/v23n3/pt_0104-0707-tce-23-03-00617.pdf. DOI: https://doi.org/10.1590/0104-07072014000600013
21. Rossouw ME, Cornell M, Cotton MF, Esser MM. Feeding practices and nutritional status of HIV-exposed and HIV-unexposed infants in the Western Cape. S Afr J HIV Med. [Internet]. 2016 [cited in 26 Aug 2019]; 17(1):1-9. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5843154/pdf/HIVMED-17-398.pdf. DOI: https://doi.org/10.4102/sajhivmed.v17i1.398
22. Souza MA, Gratão LHA, Pereira RJ. Perfil antropométrico e dietético de crianças expostas ao HIV. Rev Cereus [Internet]. 2018 [cited in 26 Aug 2019]; 10(1):65-77. Available from: http://ojs.unirg.edu.br/index.php/1/article/view/1593/612 DOI: https://doi.org/10.18605/2175-7275/cereus.v10n1p65-77
23. Roux SM, Abrams EJ, Donald KA, Brittain K, Phillips TK, Nguyen KK, et al. Growth trajectories of breastfed HIV-exposed uninfected and HIV-unexposed children under conditions of universal maternal antiretroviral therapy: a prospective study. Lancet Child Adolesc Health [Internet]. 2019 [cited in 26 Aug 2019]; 3(4):234-44. DOI: https://doi.org/10.1016/S2352-4642(19)30007-0

Associate Editor: Vania Del Arco Paschoal

CONTRIBUTIONS
Clécia de Oliveira Sampaio, **Stela Maris de Mello Padoin** and **Vanessa Ramos Kirsten** contributed to the design and reviewing. **Marília Alessandra Bick** participated in the design of the study, collection and analysis of data and writing. **Cristiane Cardoso de Paula** worked in the design, collection and analysis of data, writing and reviewing.

How to cite this article (Vancouver)
Sampaio CO, Bick MA, Kirsten VR, Padoin SMM, Paula CC. Food insecurity in families of children vertically exposed to HIV. REFACS [Internet]. 2021 [cited in *insert day, month and year of access*]; 9(3):533-541. Available from: *insert access link*. DOI: *insert DOI link*

How to cite this article (ABNT)
SAMPAIO, C. O.; BICK, M. A.; KIRSTEN, V. R.; PADOIN, S. M. M.; PAULA, C. C. Food insecurity in families of children vertically exposed to HIV. **REFACS**, Uberaba, MG, v. 9, n. 3, p. 533-541, 2021. DOI: *insert DOI link.* Available from: *insert access link*. Access in: *insert day, month and year of access.*

How to cite this article (APA)
Sampaio, C.O., Bick, M.A., Kirsten, V.R., Padoin, S.M.M., & Paula, C.C. (2021). Food insecurity in families of children vertically exposed to HIV. *REFACS*, *9*(3), 533-541. Retrieved in *insert day, month and vear of access* from *insert access link*. DOI: *insert DOI link*.