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Breastfeeding, Food Security, and Traditional Medicine in the Mazahua Otomí community, Mexico

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Abstract

Background: Breastfeeding (BF) improves food security (FS) in underprivileged and Indigenous communities and strongly correlates with midwifery practice. This paper examines the generational history of breastfeeding in the resilient and culturally diverse Mazahua Otomi (MO) community and its relationship to midwifery, traditional herbalism, and food security.

Research Aim: To analyze the time of generational breastfeeding (BF) and relate it to midwifery, traditional herbalism**,** and food security.

Methods: A structured survey, conducted under the esteemed auspices of the Intercultural University of the State of Mexico (UIEM), was administered to the students, their mothers, and their paternal and maternal grandmothers, ensuring the reliability and quality of the data collected.

Results: In three generations, the lactation period has been 13.73 months, which is above the national average and has remained constant. Births by midwives have decreased at a rate of 35%, and there is a surplus of 16% more births by midwives compared to the mestizo community. 55% of the MO community perceive that through BF, there is a saving to the family economy of between 50% and 100%.

Conclusion: This study's findings underscore the substantial contribution of MO's breastfeeding practices, midwifery, and use of medicinal plants to FS in the first 13 months of infants' lives. This is particularly significant regarding the accessibility of food and herbal resources, providing crucial insights for future research and policy development.

Keywords: breastfeeding practices, cultural norms, ethnography, historical research, indigenous communities, midwife.

Introduction

Breastfeeding (BF) is the best way to give human milk to infants. It is crucial to note that breast milk is ideal for infants during their first six months of life because it contains all the nutrients needed for healthy growth and development (UNFPA, 2020). Inadequate nutrition in the early stages of life can result in extensive and irreversible damage to the growth of the body and the development of the brain (PAHO, 2024). This underscores the importance of breastfeeding in the first six months of life, making it one of the most effective strategies for preventing infant morbidity and mortality (Hoddinott et al., 2014).

According to González-Castell et al. (2023) and the National Demographic Dynamics Survey (INEGI, 2018), the average duration of breastfeeding in Mexico is 10.2 and 9.7 months, respectively. The World Health Organization (WHO) recommends exclusive breastfeeding (EBF) from the first hours of life until six months and continued breastfeeding supplemented with other foods until two years. However, EBF before six months has fluctuated in recent years: in the 2010s, it was 33.6% to González-Castell et al. (2023), and from 2018 to 2022, there was an upward trend from 28.6% to 33.6%. These figures are below the Sustainable Development Goals (50% by 2025 and 70% by 2030) (González-Castell et al., 2023).

The decrease in EBF and breastfeeding, in general, can be explained by the increase in the consumption of formula milk substitutes (González de Cosío et al., 2013), mainly due to the promotion of artificial breastfeeding by companies through the mass media and the integration of women into the paid labor market (Vandale-Toney et al., 1997). It is important to note that breastfeeding is more common in rural areas, especially in indigenous communities (González-Castell et al., 2020). On the other hand, formula feeding and early weaning are typical of urban middle- and upper-class families due to external influences that also affect doctors (Cosío-Martínez et al., 2017).

In indigenous communities in Mexico, midwifery, breastfeeding, and herbal medicine are part of the traditional medical heritage. Traditional indigenous midwives promote close follow-up during pregnancy, childbirth, and postpartum, as well as immediate attachment and breastfeeding. In the Mazahua Otomi (MO) community, there is a strong link between midwifery assistance at birth and herbal knowledge (Gheno-Heredia et al., 2011; Rodríguez-Zúñiga et al., 2023a). MO midwives have a transcendent place in their communities because their knowledge of traditional medicine makes them specialists in providing timely care to women during pregnancy, childbirth, and the puerperium (López-Miranda, 2021; Rodríguez-Zúñiga et al., 2023b). Some studies show that in Indigenous populations, childbirth is always supported by knowledge of traditional medicine, which leads to a more extended period of breastfeeding (e.g., in Chihuahua, the average in Rarámuris community is 15 months, compared to 6.9 in state health institutions), with greater nutritional and health benefits for children (UNFPA, 2020).

Students from different professions attend the Intercultural University of the State of Mexico (UIEM), most of whom are from the MO ethnic group in communities that are

considered marginalized. They also randomly come from the municipalities and marginalized areas that concentrate the largest population of these indigenous peoples in the western part of the State of Mexico (INEGI, 2020; Rodríguez-Zúñiga et al., 2023a). In this sense, it will be an opportunity to learn directly from the students, their parents, and their grandparents the intergenerational behavior on breastfeeding times, their relationship with midwife-assisted birth, and the use of some medicinal plants (MP). In addition, the contribution of midwife-assisted birth and breastfeeding to food security in these indigenous communities.

Given that BF plays a vital role in the Food Security (FS) strategy, taking into account that food security is attained when everyone, everywhere, has physical and financial access to enough wholesome food to satisfy their dietary requirements and dietary choices for an active and healthy life (Bautista-Santos et al., 2025; PESA-Centroamérica, 2011), BF plays a crucial role in the goal of making FS a reality for the 140 million babies born every year in the world (WABA, 2024). In this sense, indigenous populations in Mexico are characterized as groups vulnerable to food insecurity and, therefore, to malnutrition, hence the importance of breastfeeding (BF) as the first way to ensure good nutrition for children in their first months of life.

This research will contribute to public policies on the rights of Indigenous peoples, the protection and promotion of their traditional forms of health care, humanized childbirth, and the use of herbal medicine. On the other hand, it will contribute to the food security of the marginalized peoples of Mexico. This research analyzed generational breastfeeding time to relate this practice with midwifery, traditional herbalism, and food security.

Methodology

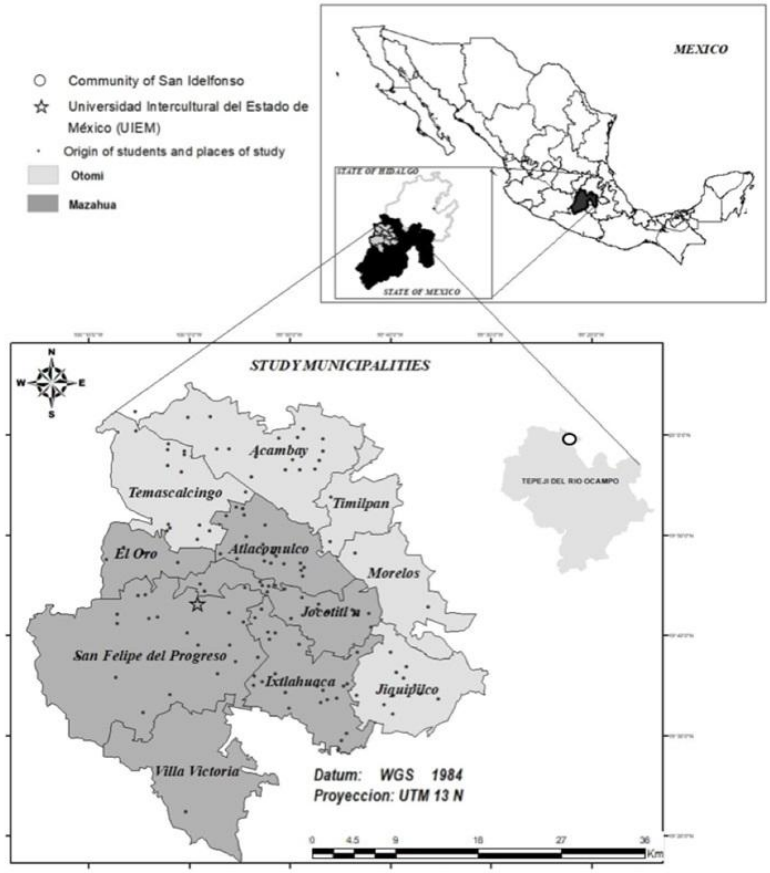
Study area. The work was carried out in the states of Mexico in the municipalities of Acambay, Atlacomulco, El Oro, Jiquipilco, Jocotitlan, Morelos, Temascalcingo, Timilpan, San Felipe del Progreso, San José del Rincón and Villa Victoria; and in Hidalgo in the municipality of Tepeji del Rio, specifically in the town of San Ildefonso (Figure 1). The municipalities of the State of Mexico concentrate the largest population of Mazahua ethnic groups, while in Hidalgo, there is a large Otomi population (INEGI, 2020; Rodríguez-Zúñiga et al., 2024).

Research design

A structured survey was designed, validated, and applied to students of the Intercultural University of the State of Mexico (UIEM), mainly from the Mazahua-Otomi ethnic groups: 70% Mazahua, 9% Otomi and 16% not belonging to any ethnic group (Rodríguez-Zúñiga et al., 2023b) with the sections: students, student mothers, fathers and maternal and paternal grandparents, so that quantitative information was collected (e.g., income, breastfeeding duration in months, perception of savings for the family economy through breastfeeding, etc.) and qualitative information (e.g., common names of medicinal plants (MP) beneficial for

breastfeeding and considered dangerous for the same effect, births assisted by midwives, native language, etc.). In this sense, convenience sampling was used to collect this information. The research objective, the questionnaire sections, the data collection form, and the consent to use the information only for research purposes were explained to the respondents before the questionnaire application. Likewise, in the community of San Ildefonso, Tepeji del Río, Hidalgo; a random structured survey was carried out among 50 people of the Otomi ethnic group to confirm, contrast, and expand the statistical information obtained from the survey carried out among the students and their sections.

Figure 1: Place of origin (northeastern region of the State of Mexico) of the families of the Intercultural Health Careers students and San Idelfonso community in the State of Hidalgo.



Source: Own elaboration.

The fieldwork was carried out in December 2023 and January 2024 in the municipality of San Ildefonso, State of Hidalgo, while in February and March 2024, it was carried out by the students of the Intercultural Health Department, who carry out community activities in the municipalities mentioned above in the State of Mexico.

The research methods employed were observation and structured surveys. Field observation, customs, medicinal plant usage, and the promotion of midwifery and breastfeeding were all identified.

Sample size through non-probability convenience sampling. The sample size was calculated using Eq. (1) maximum variance (Infante & de Lara, 2012) based on the population (enrollment) reported by the UIEM (2000 students). One hundred seventy-two people were interviewed, corresponding to 264 percent more than the sample (65 students).

$$n = \frac{\mathrm{N}Z_{\alpha/2}^2 pq}{Nd^2 + Z_{\alpha/2}^2 pq} \qquad \text{Ec. (1)}$$

Where n: sample size; N: population size (N=2600); $Z_{\alpha/2}^2$: the value of Z-distribution tables ($Z_{\alpha/2}^2$ = 2.6896); p: proportion of the population with a binomial characteristic, q=1-p (pq=0.25); d^2: maximum desired absolute error (set as a fraction of p) (10%) (d^2=0.01).

Comparison of lactation months between Mazahua-Otomi and non-ethnic groups. To observe significant differences between the variables of Mazahua-Otomi and non-ethnic groups regarding the time (average in months) mothers breastfeed (BF). Both groups were compared in terms of variables: BF of student mothers, BF of student mothers, BF of maternal grandmothers, and BF of paternal grandmothers. The tabulated database, previously created in Microsoft Excel, was analyzed with the IBM SPSS Statistics software package (V. 25.0, 64-bit edition) using the univariate technique (ANOVA) and multivariate technique MANOVA (Infante & de Lara, 2012).

Correlation of midwife-assisted births as a function of generational age. Two functions were constructed from the dataset relating the percentage of midwife-assisted births to the generations of grandparents, parents, and children: Mazahua-Otomi ethnic curve *f(g)* and non-ethnic curve *f(i)*. This was done to observe the behavior of midwife-assisted birth through the generations of grandparents, mothers, and children, to contrast both functions and to obtain the percentage difference of this practice in both populations (Equation 2).

$$\Delta_{Ebm} = \int_{grandparent}^{children} = \int f(g)dx - \int f(i)dx \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots Ecuation\ 2$$

Where Ebm: excess births per midwife; *f(g)*: function of Mazahua-Otomi ethnicity; *f(i):* function of people who do not identify with ethnicity.

Finally, regarding the use of plants in the lactation period, an Excel database was elaborated and cleaned to identify the ten primary plants, five considered forbidden and five used as beneficial medicinal plants (MP), as a result of two questions asked to the interviewed mothers of MO ethnicity (mothers of students, mothers, and grandmothers of students): (1) to mention in order of importance five primary medicinal plants (MP) that they know benefit lactation, and (2) to mention five plants that they know are the most forbidden during the lactation period.

Results and discussion

The students belong to the municipalities of San Felipe del Progreso (25%), Atlacomulco (25%), Ixtla Huaca (15%), Jocotitlán (12%), and other municipalities (23% of the total) (Figure 1). Seventy-six percent identify themselves or belong to an ethnic group (80% Mazahua, 18% Otomi, 2% other), while 24% say they do not belong to any group.

The students' communities of origin and self-identification as belonging to an ethnic or mestizo group coincide with the official data from INEGI (2020) and the studies conducted by Rodríguez-Zúñiga et al. (2023a) on medicinal plants and midwifery in the MO community. This made it possible to strengthen the analysis of this research in the area with the largest MO population in the State of Mexico, thus contrasting two populations that culturally coexist in the same territory.

Table 1 summarizes the statistics of the univariate tests. The data set had a normal distribution ($p>0.05$). In both the MO and non-ethnic communities, there are no significant differences ($p< 0.05$) or variations in the number of months of breastfeeding in four generations (mother of student, mother of student, paternal grandmother, and maternal grandmother). In these generations, the average number of months of breastfeeding remained at 13.73 and 12.91 months for the MO ethnic group and the non-ethnic group, respectively. Likewise, through the multivariate test, there are no significant differences ($p<0.05$) in terms of the average of the two groups (ethnicity and non-ethnicity).

Table 1: Summary of ANOVA test for significant differences in months of lactation in four generations.

Group	Generation (number)	Frequencies	Mean	Variance	Calculate F (probability)	Critical F
Ethnicity (MO)	student mother (1)	34	13.47	50.98	0.79 (p=0.49)	2.62
	student's mother (2)	124	12.90	44.18		
	paternal grandmother (3)	108	14.17	78.98		
	maternal grandmother	105	14.38	77.94		
	Average		13.73			
Nonethnicity	student mother (1)	5	8.4	21.3	1.28 (p=0.28)	2.7
	student's mother (2)	27	15.37	117.16		
	paternal grandmother (3)	31	13.03	42.49		
	maternal grandmother	34	14.85	57.03		
	Average		12.91			

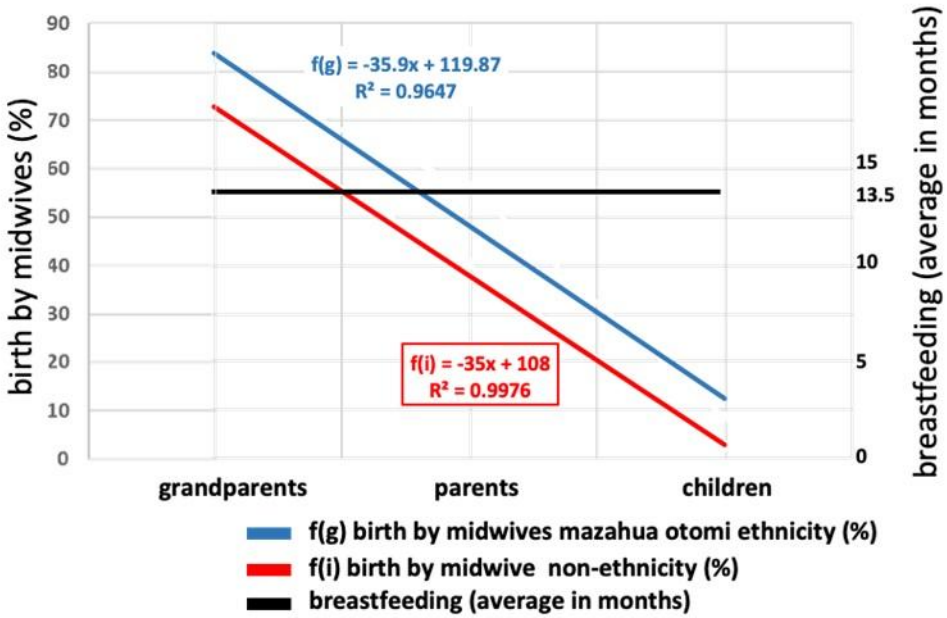
Source: own elaboration.

Figure 2 shows the generational behavior (horizontal axis) of births by midwives (%, left vertical axis) and the duration of breastfeeding (average in months, right vertical axis) that a child receives in the first months of life. According to equation 2, there was a difference of 16% more births per midwife in the MO ethnicity (difference in areas under the curves: blue: MO; red: non-ethnicity). In both groups, midwife-attended births decreased on average by

35% in each generation; simultaneously, there were no significant differences ($p < 0.05$) in average breastfeeding duration across these three generations.

The results show that in the rural areas of the State of Mexico, the practice of midwifery is not exclusive to indigenous communities (UNFPA, 2020); however, it is predominantly practiced in the latter social group. Additionally, there is a generational decline in the use of traditional medicine. The 16% surplus of this practice in favor of the MO community and the generational decrease with a rate of change of 35% in both groups is like the work of Rodríguez-Zúñiga et al. (2023a) on midwifery in the MO community 23% and 24%, respectively.

Figure 2. Comparative graph of births attended by midwives in the Mazahua Otomi ethnic group and the average number of months (both groups).



Source: own elaboration.

According to projections, it is highly likely that in the MO community, the grandchildren of this generation will be born in a hospital or clinic, while in mestizo groups, this shift will occur in the offspring generation. The decline in midwifery practices in Indigenous communities and the general population aligns with reports and studies from Mexico and worldwide on this aspect of traditional medicine (López-Miranda, 2021; Rodríguez-Zúñiga et al., 2023a; UNFPA, 2012) and the work of Argüello Avendaño & Mateo González (2014) attribute this decrease to the discrediting of midwives by health science professionals, the professionalization of midwifery, and human rights arguments asserting that childbirth care should be provided by health professionals (UNFPA, 2012).

This study considers the lack of public health centers and poverty conditions as reasons for choosing a midwife. As progress is made in addressing these indicators, midwives lose importance in their communities. Consequently, giving birth to a midwife should be an option rather than a necessity. Traditional indigenous midwives also play a crucial role in food security by promoting immediate bonding between the baby and the mother, providing emotional support to the mother, thus enhancing milk production and encouraging exclusive breastfeeding for at least six months (WHO, 2007).

Significant differences ($p>0.05$) were found in the average duration of breastfeeding between the MO community in the State of Mexico (13 months) and the Otomi community of San Idelfonso in the State of Hidalgo (16 months). In the latter, exclusive breastfeeding (EBF) for six months was 50%; 17% breastfed for less than six months, and 33% for more than six months. In both municipalities, the average monthly duration of breastfeeding exceeds the national average (10.2 months) (González-Castell et al., 2023). In the San Idelfonso community, the rate of EBF before six months surpasses the national average (37%) (González-Castell et al., 2023). Notably, the consistency in the average duration of breastfeeding across three generations in both groups (MO ethnic group and non-ethnic group, State of Mexico) indicates that, at least in this rural region, marketing and promotion of substitutes or replacements have not affected breastfeeding with human milk. These results align with statistical studies on breastfeeding in Mexico by González-Castell et al. (2020), which indicate higher breastfeeding rates in rural areas compared to higher-income families. Comparatively, Moreno Gil et al. (2020), in their studies on breastfeeding in indigenous and rural communities in Colombia, highlight that food security (FS) in households is favored by 39.4%, with exclusive breastfeeding practices at 11.9%.

Table 2 summarizes, in comparative form, some quantitative and qualitative variables of the MO ethnic group concerning non-ethnic groups. There is a significant difference ($p<0.05$) in the average monthly income of parents in both groups: the Mazahua Otomi ethnic group earns 22% less (1,541.6) than those who do not belong to any ethnic group. Regarding the perception of family savings from breastfeeding in the MO ethnic group compared to non-ethnic groups, the following stand out: 11% consider economic savings in the range of 50% to 100%, and there is a more excellent perception of savings, 12% more, in terms of knowledge of family savings from breastfeeding. Sixteen percent of MOs consider that the preference for breastfeeding for infants is more a matter of habit or custom. Finally, people who do not belong to any ethnic group have a 5% greater lack of knowledge about the benefits of breastfeeding than the MO community.

In terms of parental income, according to CONEVAL (2024), both MO and non-ethnic groups are above the income poverty line (175.07 (USD)), food and non-food basket): 71% MO and 120% non-ethnic, but well below the threshold to exit poverty (707.27(USD)), that is, 25% and 55% less, respectively.

Table 2: Summary of comparison of variables.

Variables	**Ethnicity Ethnicity**	**Non-Ethnicity**
Mean in months of lactation	$\bar{x}$ = 13.73	$\bar{x}$ = 12.91
Income ($MN)	$\bar{x}$ = 297.15(USD)	$\bar{x}$ = 386.16(USD)
Savings to family economy **(%)**		
10 to 20	13	11
25 to 50	19	21
50 to 75	29	25
75 to 100	26	19
Not used	13	25
Preference for breastfeeding (%)		
Financial savings	5	10
Usual	19	3
Better nutrition	77	78
Affects body aesthetics	3	5
Lack of knowledge about PM beneficial for breastfeeding		
Student´s mother	57(44)	23(56)
Student´s mother(a)	84(64)	30(73)
Maternal grandmother	97(74)	34(83)
Paternal grandmother	93(71)	28(68)

Source: Own elaboration

This study considers the MO community the poorest in the study region of the State of Mexico. The claim of greater poverty in the MO community is supported by:

1) In the MO community, there is a more significant positive impact of breastfeeding activity on their economy compared to non-ethnic groups: 12% fewer are unaware that there is an "economic saving," and 11% more perceive that there is a saving in the range of 50 to 100%. In Indigenous communities, breastfeeding is prolonged in comparison to mestizo groups more as a customary practice (16%) than because of knowledge of its benefits, such as economic savings and food quality (González-Castell et al., 2020). The precariousness of their salaries limits them from participating in the marketing game that tries to sell them milk substitutes and an endless number of articles that accompany their consumption.

2) For mestizos, it is better to be born in a hospital (see Figure 2), even though midwifery is an ancestral cultural practice that favors humanized childbirth (Rodríguez-Zúñiga et al., 2023a), it is also true that this is a cost-saving strategy given the inaccessible costs of a private clinic and the lack of access to public health centers. Midwifery is related to poverty on a global scale. UNFPA (2012) reports that whereas traditional doctors attend 98% of births in developed nations, this number falls to 65% in low-income countries and as low as 20% in the world's poorest nations. In Indigenous communities with high development priority, the

MO Indigenous group's midwives are an essential human resource for the family economy and food security.

Finally, the MO and non-ethnic communities recognize the nutritional value of breast milk (77% and 78%, respectively). These data coincide with the work of Moreno Gil et al. (2020) on breastfeeding studies in indigenous and rural communities in Colombia. Regarding prohibited or beneficial plants for breastfeeding, Table 3 summarizes the top 10 plants mothers in the MO community mentioned across three generations. On average, 63% of the medicinal plants (MP) most used or beneficial for lactation are fennel and chamomile, while only 61% of the prohibited plants are rue. Also, on average, more PM plants are known to be beneficial (43 mentions) than prohibited (28 mentions) during lactation. It is noteworthy that student mothers have a more excellent knowledge of beneficial plants and those that are prohibited for lactation, i.e., in total beneficial: MO ethnicity: 76 in female students for 27 on average with their mother and grandmother; and in the same sense for non-ethnicity: 35 to 25.

The indigenous peoples of Mexico, especially the Mazahua-Otomi (MO), have a more extraordinary tradition of knowledge in herbal medicine and a greater openness to traditional medical practices than the mestizo population (Rodríguez-Zúñiga et al., 2023b). This explains why those who self-identify as non-indigenous among student mothers and, on average, across the three generations have 12% and 5% more, respectively, lack of knowledge about Medicinal Plants (PM) beneficial for breastfeeding (see Table 3). However, both groups use PM, as it is known that 80% of the world population uses PM in primary health care (WHO, 2007). The use of “hinojo” (33%, first place) and “manzanilla” (23%, second place) as the two most used or mentioned medicinal plants beneficial for breastfeeding aligns with the findings of Pulido-Acuña et al. (2012) in their study of pregnant and lactating women in Colombia. This indicates that these plants use, and order of importance are not exclusive to the MO community. Among the five beneficial plants identified, only “hinojo” (*Foeniculum vulgare*, ranked first) and “fenogreco” (*Trigonella foenumgraecum*, ranked fifth) are, plants that induce, maintain, and increase milk production (Mohanty et al., 2014).

Few studies address the use of plants according to the trimesters of pregnancy, childbirth, and lactation. Additionally, there is insufficient information about the risks and benefits these natural products may pose to both mother and fetus (Pulido-Acuña et al., 2012). Like many others, this study emphasizes the importance of researching these plants' use, effects, efficacy, and toxicity. Such research would enable health professionals to provide prudent guidance and care through cultural practices (Pulido-Acuña et al., 2012; Rodríguez-Zúñiga et al., 2023a). Consequently, it is recommended that future research focus on these ten identified plants, as experience demonstrates both their benefits and contraindications during lactation. This study also underscores the importance of intercultural action in promoting the correct use of plants, noting that the third generation (student mothers) possesses more excellent knowledge of these natural resources than the generations of mothers and grandmothers.

Table 3: Medicinal plants most used and prohibited during lactation in the Mazahua-Otomi community.

Use and non-use	Medicinal plants	Students' women mothers		Mothers of the students		Paternal grandmother		Maternal grandmother		Average	
		F	%	F	%	F	%	F	%	F	%
Uses for breastfeeding	"hinojo" (*Foenicolium vulgare*)	27	36	11	31	7	39	10	34	14	34
	"manzanilla" *(Matricaria recutita* L.)	24	32	15	42	1	6	9	31	12	29
	"jara" (*Barkleyanthus salicifolius)*	11	14	6	17	7	39	6	21	8	20
	"anis" (*Pimpinela anisum)*	7	9	2	6	2	11	3	10	4	10
	"fenogreco" *(Trigonella foenogracum)*	7	9	2	6	1	6	1	3	3	7
	Total	76	100	36	100	18	100	29	100	41	100
Prohibited for breastfeeding	"ruda" (*Ruta graveolens* L.)	24	69	17	63	11	52	16	62	17	61
	"orégano" *(Origanum vulgar)*	3	9	4	15	3	14	5	19	4	14
	"ajenjo" *(Artemisia ludoviciana)*	4	11	4	15	4	19	2	8	4	14
	"epazote morado" *(Chenopodium ambrosioides)*	1	3	1	4	3	14	3	12	2	7
	"tomillo" *(Thymus vulgaris)*	3	9	1	4	0	0	0	0	1	4
	Total	35	100	27	100	21	100	26	100	28	100

f= frequency or number of times the plants were mentioned
Source: own elaboration

Finally, three of the principal axes of food security (FS) focus on consuming quality food, having sufficient economic resources to obtain it, and its constant availability. This study considers that breastfeeding and midwife-assisted childbirth can significantly impact food security and well-being in these communities, especially regarding food accessibility in the first months of life. However, for future research and due to the importance of these two ancestral practices, the accessibility and availability of breast milk should be further explored. According to Moreno Gil et al. (2020), indigenous populations in Mexico are characterized as groups vulnerable to food insecurity and malnutrition. Additionally, Rodríguez-Zúñiga et al. (2024) have noted that the majority of Mazahua and Otomi adults in

this study region experience malnutrition problems manifesting as overweight and obesity, as well as related conditions such as type II diabetes. Consequently, the quality of breastfeeding should be evaluated, including the nutritional status of Mazahua and Otomi mothers throughout the process and duration of breastfeeding. Nonetheless, food security in the MO community is achieved at least for the first 13 months of an infant's life, though this feeding period will have lasting impacts throughout their lives.

Conclusions

In the Mazahua Otomi community and, in general, in the rural area of the study in the State of Mexico, the average duration of breastfeeding in children is 13.73 months, which is comparatively higher than the national average of 10.2 and 9.7 months, respectively. This average was maintained across generations of grandparents, parents, and children.

Across the Mazahua and Otomi ethnic groups, as well as among those who do not identify with any ethnic group, the prevalence of midwife-assisted births has decreased proportionally by 35% with each generation, from grandparents to parents to children. However, the Mazahua-Otomi community still maintains a 16% higher rate of this practice than the non-ethnic group. Despite this declining trend in midwife-assisted births, the average duration of breastfeeding for children in both groups has remained constant over this generational period.

There is more excellent knowledge of medicinal plants in the MO community. The five most commonly used medicinal plants in midwifery, in order of importance, are: "hinojo" (*Foeniculum vulgare*), "manzanilla" (*Matricaria recutita* L.), "jara" (*Barkleyanthus salicifolius*), "anís" (*Pimpinella anisum*), and "fenogreco" (*Trigonella foenum-graecum*); of these, only "hinojo" and "fenogreco" are galactogogues. The five main plants that should not be used during lactation are: "ruda" (*Ruta graveolens* L.), "orégano" (*Origanum vulgare*), "ajenjo" (*Artemisia ludoviciana*), "epazote morado" (*Chenopodium ambrosioides*), and "tomillo" (*Thymus vulgaris*).

In the study area in the State of Mexico, the indigenous people of the MO ethnic group are the poorest in the region: they have an income of 297.15 (USD), which is 25% below the poverty line. Breastfeeding (BF) positively impacts the family economy, as 55% of the community perceives that BF saves between 50 and 100% of the family economy. Poverty, knowledge of herbal medicine, and the practice of traditional medicine counterbalance the marketing of breastmilk substitutes.

Breastfeeding and midwifery contribute significantly to the food security of the Mazahua Otomi, especially in terms of access to food during the first 13 months of the child's life. The federal government and health and nutrition sciences educational centers should organize social and academic support systems that promote breastfeeding and create a favorable environment that protects the MO mother.

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