

The impact of Paediatric Ankyloglossia on exclusive breastfeeding in Portugal: an online survey on mother's experiences



J. Morgado Dias¹, J. Abanto^{2,3},
J. Correia Pinto^{4,5}, H. Soares^{6,7}, C. Areias⁷

¹Pediatric Dentistry Department, Faculty of Dental Medicine, Oporto University, Porto, Portugal

²Pediatric Dentistry Department, School of Dentistry, Paulista Association of Dental Surgeons, São Paulo, Brazil

³Pediatric Dentistry Department, Faculty of Dentistry, Universitat Internacional de Catalunya, Barcelona, Spain

⁴Director of Pediatric Surgery Department, Braga Hospital, Portugal

⁵Dean of Medical School, School of Medicine, University of Minho, Portugal

⁶Neonatology Department, Sao Joao Hospital, Porto, Portugal

⁷CINTESIS@RISE, Faculty of Medicine, University of Porto, Portugal

DOI 10.23804/ejpd.2025.2427

email: joanamorgadodias@gmail.com

Abstract

Aim This study examined maternity ward indicators associated with exclusive breastfeeding prevalence (EBFP) for six months, including diagnosis and treatment of ankyloglossia and indicators associated with the evaluation of the latter.

Methods An online survey assessed mothers' breastfeeding experiences during the COVID-19 pandemic. The study enlisted 2,540 mothers in Portugal who had given birth at least once between 1 January 2020 and 31 December 2022. An online survey was circulated via social media during August 2023 with closed questions regarding mothers' breastfeeding experiences and questions on the evaluation, diagnosis, and treatment of ankyloglossia. Poisson regressions were performed.

Results According to mothers' reports, the EBFP for six months was 64.5%, while 19% and 51.3% of infants received evaluation of lingual frenulum during hospitalisation in the maternity ward and during the first six months, respectively. Diagnosis and treatment of ankyloglossia were reported for 16% and 13.2% of infants, respectively. The adjusted model showed a higher EBFP for six months among mothers with skin-to-skin contact immediately after birth with support to breastfeed at maternity ward, as well as infants born outside the hospital environment ($p < 0.05$). Conversely, mothers who breastfed after the first hour of life were significantly ($p < 0.05$) less likely to report EBFP for six months. The evaluation of infant lingual frenulum at maternity was more likely in those born in a private hospital in 2022, where mothers received breastfeeding support, but less likely in those who breastfed after the first hour of life ($p < 0.05$).

Conclusions Positive measures in the maternity ward, such as breastfeeding support, skin-on-skin contact, along with early initiation of breastfeeding within the first hour after birth, contribute to EBFP for up to six months and evaluation of the lingual frenulum. These findings underscore the importance of consistent breastfeeding support and highlight an increased emphasis on ankyloglossia assessment during the COVID-19 pandemic.

Introduction

The World Human Organization (WHO) defines exclusive breastfeeding (EBF) as a condition where an infant is fed solely with breast milk exclusively and no other food except drops or syrups containing vitamins or other supplements. Along with the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN), WHO recommends

KEYWORDS Breastfeeding, lingual frenulum, ankyloglossia, tongue-tie, human milk.

that breast milk should be the sole food offered to the infant in the first six months of life and that breastfeeding should continue, alongside complementary food, for up to two years or longer if the mother and the baby desire [Fewtrell et al., 2017]. Worldwide, the proportion of infants exclusively breastfed during the initial six months of life has risen by 10% over the last ten years, reaching 48% in 2023 [Unicef and WHO, 2023] nearing the World Health Assembly's goal of 50% by 2025 [Branca et al., 2012]. According to the literature [Ganho-Ávila et al., 2023], governmental responses to the COVID-19 pandemic (including the closure of schools and workplaces) may have had protective effects (such as the extension of maternity leave) and adverse effects (such as the reduction of social support) regarding breastfeeding plans. Mothers' perceptions of minimal or no alterations in prenatal care because of COVID-19, together with insufficient support after hospital discharge, have adversely impacted breastfeeding rates. In contrast, being on maternity leave and having access to online support groups, like virtual mother groups or breastfeeding support groups, have been linked to a higher likelihood of breastfeeding in all countries during the COVID-19 pandemic, serving as one of the most significant influencing factors [Ganho-Ávila et al., 2023]. Ankyloglossia is a congenital abnormality in tongue development, marked by a short and thick lingual frenulum. This condition restricts tongue mobility, leading to partial ankyloglossia, where movement is limited, or total ankyloglossia, where the tongue seems fused to the mouth floor [American Academy of Pediatric Dentistry, 2021]. A systematic review and meta-analysis published in 2022, illustrated that paediatric ankyloglossia is commonly linked with inadequate breastfeeding, infant gastroesophageal reflux, diminished maternal breastfeeding self-confidence, and moderately severe nipple discomfort. Approximately half of mother-infant pairs in a population with ankyloglossia encountered challenges with breastfeeding [Cordray et al., 2023]. Ankyloglossia represents a notable condition, and the accompanying symptoms could discourage mothers from exclusively breastfeeding. The

VISUAL ABSTRACT

Summary

This study analyzed maternity ward indicators linked to six-month exclusive breastfeeding prevalence (EBFP), focusing on the evaluation and treatment of the lingual frenulum (ankyloglossia)

Study design

Retrospective study

Online survey during the COVID-19 pandemic regarding mothers' breastfeeding experiences and the evaluation, diagnosis, and treatment of ankyloglossia

Population

2,540

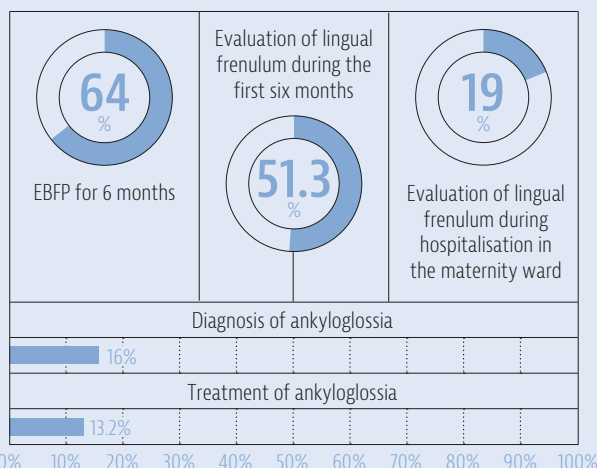
Mothers
in PortugalMothers who gave birth
between

1 January 2020

31 December 2022

Outcomes

Primary outcome



Secondary outcome

Factors associated
with EBFP

1

Skin-to-skin contact
immediately after birth

+

Support to breastfeed at
maternity ward

2

Infants born outside the
hospital environment

Factors associated with
reduced EBFP

Mothers who breastfed after
the first hour of life

Conclusion

The study did not find
an association between
the diagnosis of
ankyloglossia and EBFP
nor between lingual
frenotomy surgery and
EBFP.

To cite: Morgado Dias J, Abanto J, Correia Pinto J, Soares H, Areias C. The impact of Paediatric Ankyloglossia on exclusive breastfeeding in Portugal: an online survey on mother's experiences. Eur J Paediatr Dent. 2025 2025 Sep; 26(2): 229-234. doi: 10.23804/ejpd.2025.2427. PMID: 40470893

EUROPEAN JOURNAL OF
**PAEDIATRIC
DENTISTRY**

implications for infant health and maternal welfare need to be consistently considered and addressed [Cordray et al., 2023; Ferrés-Amat et al., 2017]. The American Academy of Pediatrics (AAP) affirms that the presence of a restrictive lingual frenulum can interfere with breastfeeding by limiting the infant's ability to extend and elevate their tongue, which is essential for effectively latching onto the nipple during suckling [Thomas et al., 2024]. This study assesses maternity ward indicators associated with exclusive breastfeeding prevalence (EBFP) for six months, including diagnosis and treatment of ankyloglossia and indicators associated with the evaluation of lingual frenulum in infants.

Methods

This study was approved by the Ethics Committee for Health of the Faculty of Dental Medicine, Oporto University. All participating mothers provided their consent to participate in the study and agreed to the handling of the collected data.

Study Population

An online survey based on mothers' breastfeeding experiences during the COVID-19 pandemic was conducted with mothers who delivered babies between 1 January 2020 and 31 December 2022 in Portugal.

Data collection

The mothers in the study were invited to complete an online survey hosted on Google Forms®. A link to the survey was distributed via social media platforms such as Instagram and

online mother-focused breastfeeding groups. No sensitive or personal data were collected. The survey consisted of closed-ended, multiple-choice questions, including data on number of children, child's year of birth, mother's age, town of birth, type of birth, place of birth (i.e., private or public hospital, home or ambulance), whether it was a full-term pregnancy, whether the baby was breastfed within the first hour of life, whether skin-to-skin contact was initiated, whether the baby's lingual frenulum was assessed, whether ankyloglossia was diagnosed, whether ankyloglossia surgical treatment was administered, the duration of exclusive and non-exclusive breastfeeding, whether specialised assistance from a breastfeeding support professional was received, and the mother's perception of breastfeeding support during hospitalisation.

Statistical analysis

Data analyses were performed using STATA® software 16.0 (Stata Corp., College Station, Texas, USA). Initially, descriptive analyses of central tendency and dispersion (mean and standard deviation) for quantitative variables were performed, while absolute and relative frequencies were performed for categorical variables. Poisson regression models with robust variance were implemented to assess the association between EBF and sociodemographic characteristics and experiences related to breastfeeding, as well as the evaluation, diagnosis, and treatment of ankyloglossia. A further analysis evaluated the association between the prevalence of lingual frenulum evaluation, sociodemographic characteristics, and breastfeeding-related experiences. Prevalence ratios (PR) and their respective 95% confidence intervals (CI) were employed

Socio-demographic characteristics	N (%) or mean (standard deviation)
Child's year of birth	
2020	614 (24.2%)
2021	804 (31.7%)
2022	1122 (44.1%)
Which child corresponds	
1st Child	1855 (73%)
2nd or more Child	685 (27%)
Mother's age at the time of birth	
Up to 30 years (inclusive)	820 (32.3%)
Over 30 years	1720 (67.7%)
Region of Portugal	
Norte	1138 (44.8%)
Área Metropolitana de Lisboa	958 (37.7%)
Centro	279 (11%)
Alentejo	23 (0.9%)
Algarve	63 (2.5%)
Ilhas	79 (3.1%)
Birth Hospital/Maternity	
Public	1645 (65%)
Private	869 (34%)
Other (home or ambulance)	26 (1%)
Full-term pregnancy	
Yes	2367 (93.2%)
No	173 (6.8%)
Skin-to-skin contact right after birth	
Yes	1677 (66%)
No	863 (34%)
First breastfeeding	
Within the first hour of life	1944 (76.5%)
After the first hour of life	596 (23.5%)

Socio-demographic characteristics	N (%) or mean (standard deviation)
Assessment of lingual frenulum before discharge from the maternity ward/hospital	
Yes	484 (19%)
No	2056 (81%)
Assessment of the lingual frenulum up to 6 months	
Yes	1303 (51.3%)
No	889 (35%)
Don't know	349 (13.7%)
Ankyloglossia diagnosis	
Yes	409 (16%)
No	1592 (63%)
Don't know	539 (21%)
Duration of Exclusive Breastfeeding	
Up to 6 months	901 (35.5%)
6 months or more	1638 (64.5%)
Duration of Breastfeeding	
Up to 30 days	86 (3.4%)
1 to 4 months	266 (10.5%)
6 to 12 months	556 (21.9%)
More than 12 months	1632 (64.2%)
Maternal perception of support for breastfeeding during hospitalization in the hospital/maternity ward	
Felt supported	980 (38.6%)
Did not feel supported	1560 (61.4%)
Requested specialized help to breastfeed in the first 15 days after giving birth	
Yes	1192 (47%)
No	1348 (53%)
Surgical treatment of ankyloglossia (lingual frenotomy)	
Yes	335 (13.2%)
No	74 (3%)
Without diagnosis of ankyloglossia	2131 (83.8%)

TABLE 1 Characteristics of participants (N= 2540).

to assess associations between the outcome variable and explanatory variables. A p-value ≤ 0.20 in the unadjusted association assessment was considered a prerequisite for including covariates in the adjusted regression model. Having a p-value ≤ 0.05 in the adjusted model was the criterion for choosing covariates that remained in the final regression model.

Results

The study assessed 2,540 eligible participants, all of whom were mothers of at least one child. Seventy-three per cent of the participants referred to their first child ($n = 1855$), and 67.7% of the mothers were over 30 ($n = 1720$). Most births occurred in a public hospital/maternity unit (65%) and 34% in a private hospital/maternity unit. The sociodemographic data is summarised in Table 1. Most mothers had a full-term pregnancy (93.2%), with skin-to-skin contact immediately after birth (66%). Breastfeeding was reported within the first hour of life by 76.5% of the mothers, and 81% reported that their baby's lingual frenulum was not assessed during the postpartum hospital stay. However, 51.3% reported that their infant's lingual frenulum was assessed within the first six months of life. Despite this, 63% of mothers reported that their infant was not diagnosed with ankyloglossia, 21% reported not

knowing, and 16% confirmed a diagnosis of ankyloglossia ($n = 409$). It was observed that 35.5% of participants had exclusive breastfeeding for less than six months, and 64.5% breastfed exclusively for six months or more. Regarding duration of total breastfeeding, only 3.4% breastfed for up to 30 days, 10.5% breastfed for one to four months, 21.9% for six to 12 months, and 64.2% of the mothers breastfed for more than 12 months. Regarding mothers' opinions about breastfeeding support at the hospital or maternity ward, 61.4% ($n=1,560$) reported receiving insufficient support from the healthcare team to breastfeed their baby with confidence. After discharge, 47% sought specialised help with breastfeeding within the first 15 days of lactation with an internationally certified lactation consultant (IBCLC) or other breastfeeding support professional. Table 2 shows the assessment of associations between EBFP and explanatory variables. The adjusted model showed a higher EBFP for six months among mothers with skin-to-skin contact immediately after birth ($PR=1.03$; 95% $CI= 1.03-1.06$), with support to breastfeed at maternity ($PR=1.03$; 95% $CI= 1.01-1.05$), as well as infants born outside the hospital environment ($PR=1.13$; 95% $CI= 1.07-1.19$) in the Lisbon Metropolitan Area ($PR=1.05$; 95% $CI= 1.02-1.08$). In contrast, mothers who breastfeed after the first hour of life were significantly less likely to report EBFP for six months ($PR=0.95$; 95% $CI= 0.92-0.98$).

Socio-demographic characteristics	Unadjusted analysis		Adjusted analysis	
	PR (95% CI)*	P-value	PR (95% CI)*	P-value
Number of children				
First child	1			
Second or more child	0.03 (0.00-0.06)	0.040		
Mother's age at the time of birth				
Up to 30 years	1			
Over 30 years	1.01 (0.98-1.03)	0.580		
Region of Portugal				
Norte	1		1	
Área Metropolitana de Lisboa	1.04 (1.02-1.08)	0.001	1.05 (1.02-1.08)	<0.001
Centro	1.00 (0.96-1.04)	0.898	0.99 (0.96-1.04)	0.943
Alentejo	0.89 (0.77-1.02)	0.095	0.91 (0.96-1.04)	0.170
Algarve	1.02 (0.96-1.11)	0.435	1.02 (0.96-1.10)	0.463
Ilhas	0.99 (0.93-1.06)	0.834	0.99 (0.93-1.06)	0.788
Birth Hospital/Maternity				
Public	1		1	
Private	0.99 (0.97-1.02)	0.893	0.98 (0.95-1.00)	0.086
Other	1.17 (1.11-1.23)		1.13 (1.07-1.19)	<0.001
Full-term pregnancy				
Yes	1			
No	1.05 (1.00-1.10)	0.041		
Skin-to-skin contact right after birth				
No	1		1	
Yes	1.06 (1.04-1.09)	0.000	1.03 (1.00-1.06)	0.027
First breastfeeding				
Within the first hour of life	1		1	
After the first hour of life	0.93 (0.91-0.96)	0.000	0.95 (0.92-0.98)	0.002
Assessment of lingual frenulum before discharge from the maternity ward/hospital				
Yes	1			
No	0.99 (0.96-1.02)	0.372		
Ankyloglossia diagnosis				
Yes	1			
No	0.99 (0.96-1.03)	0.715		
Don't know	0.98 (0.95-1.02)	0.347		
Maternal perception of support for breastfeeding during hospitalization in the hospital/maternity ward				
Don't Felt support	1		1	
Felt support	1.03 (1.01-1.06)	0.007	1.03 (1.01-1.05)	0.017
Requested specialized help to breastfeed in the first 15 days after giving birth				
Yes	1			
No	1.07 (0.00-1.04)	5.59		
Surgical treatment of ankyloglossia (lingual frenotomy)				
Yes	1			
No	1.02 (0.96-1.08)	0.494		
Without diagnosis of ankyloglossia	1.02 (0.97-1.07)	0.560		

TABLE 2 Assessment of factors associated with Exclusive Breastfeeding Prevalence.

The diagnosis and surgical treatment of ankyloglossia did not affect the EBFP ($p < 0.05$). Table 3 synthesises the assessment of variables associated with the evaluation of infants' lingual frenulum. The adjusted model showed that the evaluation of infant lingual frenulum at maternity was more likely in those born in a private hospital (PR=1.21; 95% CI= 1.03-1.43), in those born in 2022 compared to those born in 2021 and 2020 (PR=1.29; 95% CI= 1.05-1.60), and in those whose mothers received breastfeeding support in the maternity ward (PR=1.99; 95% CI= 1.69-2.35), but less likely in those who breastfed after the first hour of life (PR=0.74; 95% CI= 0.59-0.91).

Discussion

The Global Breastfeeding Initiative in Hospitals is an international endeavour initiated by the WHO and UNICEF to

enforce protocols that safeguard, advocate for, and assist breastfeeding. The initiative was introduced in 1991 as a response to the Innocenti Declaration [Baby-Friendly Hospital Initiative, 2009]. In Portugal, the initiative commenced in 1994, and there was a rise from 20.6% of EBFP at six months in 1995/96 to 30.3% in 2014 [Kislaya et al., 2017]. A research endeavour undertaken at two medical facilities in the Lisbon metropolitan area in 2019 determined that the EBFP at discharge was 74.2%, while at six months, it was 25.6% for the study cohort [Branco et al., 2023]. Additionally, in 2019, an investigation was conducted at a medical institution within the Porto metropolitan area, assessing EBFP upon maternity discharge and at the second month of infancy, revealing percentages of 80.5% and 59.7%, respectively [Santos Silva et al., 2021]. Both studies conclude that these results fall short of the WHO's designated objectives for EBFP, and further efforts should be exerted in this regard by healthcare teams. In 2022,

Socio-demographic characteristics	Unadjusted analysis		Adjusted analysis	
	PR (95% CI)*	P-value	PR (95% CI)*	P-value
Child's year of birth				
2020	1		1	
2021	1.14 (0.90-1.45)	0.269	1.11 (0.88-1.39)	0.378
2022	1.37 (1.10-1.69)	0.004	1.29 (1.05-1.60)	0.017
Number of children				
First child	1			
Second or more child	1.24 (0.94-1.34)	0.189		
Mother's age at the time of birth				
Up to 30 years	1			
Over 30 years	0.94 (0.79-1.11)	0.465		
Region of Portugal				
Norte	1			
Área Metropolitana de Lisboa	0.88 (0.74-1.05)	0.153		
Centro	0.75 (0.55-1.01)	0.054		
Alentejo	0.63 (0.22-1.83)	0.396		
Algarve	0.99 (0.61-1.64)	0.998		
Ilhas	0.98 (0.62-1.54)	0.62		
Birth Hospital/Maternity				
Public	1		1	
Private	1.23 (1.04-1.45)	0.014	1.21 (1.03-1.43)	0.018
Other	1.31 (0.65-2.66)	0.457	1.10 (0.58-2.11)	0.765
Full-term pregnancy				
Yes	1			
No	1.07 (0.77-1.49)	0.695		
Skin-to-skin contact right after birth				
Yes	1			
No	1.24 (1.04-1.48)	0.018		
First breastfeeding				
Within the first hour of life	1		1	
After the first hour of life	0.67 (0.53-0.83)	0.000	0.74 (0.59-0.91)	0.006
Maternal perception of support for breastfeeding during hospitalization in the hospital/maternity ward				
Don't Felt support	1		1	
Felt support	2.06 (1.75-2.42)	0.000	1.99 (1.69-2.35)	<0.001
Requested specialized help to breastfeed in the first 15 days after giving birth				
Yes	1			
No	1.30 (1.10-1.53)	0.001		

*PR=Prevalence ratio; 95% CI= Confidence Interval

TABLE 3 Assessment of factors associated with Evaluation of the Lingual Frenulum.

a study on breastfeeding rates in Portugal was conducted within the scope of the Childhood Obesity Surveillance Initiative (COSI), a WHO program created to monitor childhood obesity rates in European countries. The data show a prevalence of exclusive breastfeeding rate at six months of 21.8% in Portugal, which falls far short of the WHO targets [Ana Rito et al., 2023]. Most of the women who responded to our questionnaire reported insufficient support from hospital staff to breastfeed their children with confidence. A significant portion sought assistance after being discharged, and our research revealed a high rate of EBFP compared to published data in Portugal (64.5%). Our results would have benefitted if the questionnaire had been disseminated more broadly and not primarily within breastfeeding support groups. These support groups for breastfeeding mothers that emerged during the COVID-19 pandemic demonstrated a positive effect on breastfeeding. We believe that most of the women who responded to the

questionnaire benefitted from this support, and hence, we obtained a higher rate of EBFP. Thus, it was apparent that the presence of a good support team for breastfeeding led to a higher assessment of ankyloglossia during the COVID-19 pandemic. One of the strongest associations with the highest rates of EBFP at six months was observed among infants born outside the hospital setting (i.e., at home or in an ambulance); however, the frequency of newborns born in such situations was very low (1%). Another strong association was observed with factors including the infant not being the firstborn, maternal age over 30 years, skin-to-skin contact immediately after birth, and breastfeeding within the first hour of the newborn's life. These observations may reflect mothers' greater experience with subsequent births and potential prior breastfeeding. Being over 30 could lead to a greater search for knowledge in this area, and hospital policies supporting breastfeeding contribute to these outcomes. The breastfeeding

experience may be impacted for mothers of infants with ankyloglossia, as this condition is associated with inadequate tongue mobility, leading to symptomatic situations where proper latching onto the breast, ineffective suction, inadequate milk flow, alterations in the milk ejection reflex, and low weight gain are observed [Walsh and Tunkel, 2017; Tomara et al., 2023; Campanha et al., 2019; Botzer et al., 2021]. Cordray et al.'s systematic review and meta-analysis concluded that paediatric ankyloglossia is linked to challenges in breastfeeding, reduced maternal confidence in breastfeeding, infant gastroesophageal reflux, and moderate nipple pain [Cordray et al., 2023]. Riskin et al. also underscored those infants with tongue-tie, whether anterior or posterior ankyloglossia, encounter greater challenges with breastfeeding within the initial 30 days of life [Riskin et al., 2014]. However, a recent multicentre cohort study found no significant difference in EBFP and total breastfeeding between groups of infants with ankyloglossia and those without at one, four and six months. The authors of this study state that the low prevalence of ankyloglossia in the studied population limited the investigation of its association with the duration of breastfeeding, whether total or exclusive. They also express concern about the potential for overextrapolation of their findings, noting that the high number of follow-up losses throughout the study further limits the strength of the conclusions. Moreover, they acknowledge that these findings do not rule out the possibility of some influence of ankyloglossia on breastfeeding outcomes, particularly regarding breastfeeding difficulties. [Feldens et al., 2024].

Our findings revealed a higher frequency of lingual frenulum assessments in 2022 compared to 2020, suggesting increased attention to this theme among healthcare professionals' teams in 2022. Our study also reveals that infants born in private hospitals were likelier to undergo a lingual frenulum assessment before discharge. We believe the dissemination of knowledge regarding the influence of lingual frenulum in infants, ankyloglossia, and its possible impact on breastfeeding increased during the COVID-19 pandemic. This knowledge has contributed to the demand for assessments by families and healthcare professionals.

Our study did not find an association between the diagnosis of ankyloglossia and EBFP nor between lingual frenotomy surgery and EBFP. The fact that this is a maternal report raises questions about the criteria used for the diagnosis of ankyloglossia and how and under what circumstances surgeries were performed. For instance, it is unclear which healthcare professional diagnosed the condition and, in the case of surgical treatments, how the lingual frenotomy was performed and whether there was a multidisciplinary follow-up team (e.g., a speech therapist, osteopath or physiotherapist).

One of the challenges encountered when analysing these data is that the questionnaires were self-administered. Although the study includes a non-representative sample of the Portuguese population, it provides an understanding of individual mothers' experience of breastfeeding and perceptions regarding the assessment of infants' lingual frenulum and the diagnosis of ankyloglossia. Further research focusing on the evaluation of the lingual frenulum, the diagnosis of neonatal ankyloglossia, and its implications for breastfeeding outcomes is essential to provide a clearer understanding and evidence-based insights within the Portuguese population.

Conclusion

Positive practices in maternity wards, such as breastfeeding

support, immediate skin-on-skin contact, along with early initiation of breastfeeding within the first hour after birth, contribute significantly to achieving EBFP for up to six months and to assessing the latent lingual frenulum.

The COVID-19 pandemic appears to have influenced an increase in lingual frenulum assessments in 2022 and EBFP at six months.

References

- › American Academy of Pediatric Dentistry. Policy on management of the frenulum in pediatric dental patients. The Reference Manual of Pediatric Dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry; 2021:76-80.
- › Botzer E, Quinzi V, Salvati S.E, Coceani Paskay L, Saccomanno S. Myofunctional therapy Part 3: Tongue function and breastfeeding as precursor of oronasal functions. *Eur J Paediatr Dent* 2021; 22(3): 248–250.
- › Branco J, Manuel A, Completo S, Marques J, Antão R, Gago C et al. Prevalence and Predictive Factors of Exclusive Breastfeeding in the First Six Months of Life. *Acta Med Port* 2023 Jun;36(6):416-423.
- › Campanha S, Martinelli R, Palhares D. Association between ankyloglossia and breastfeeding. *CoDAS* 2018; Jun 31(1).
- › Cordray H, Mahendran G, Tey C, Nemeth J, Sutcliffe A, Ingram J, Raol N. Severity and prevalence of ankyloglossia-associated breastfeeding symptoms: A systematic review and meta-analysis. *Acta Paediatrica* 2023; 112:347–357.
- › Feldens C, Heck A, Rodrigues P, Coelho E, Vítolo M, Kramer P. Ankyloglossia and Breastfeeding Duration: A Multicenter Birth Cohort Study. *Breastfeeding Medicine* 2024; 19(1) 17–25.
- › Ferrés-Amat E, Pastor-Vera T, Rodríguez-Alessi P, Mareque-Bueno J, Ferrés-Padró E. The prevalence of ankyloglossia in 302 newborns with breastfeeding problems and sucking difficulties in Barcelona: a descriptive study. *Eur J Paediatr Dent* 2017; 18(4) 319–325.
- › Fewtrell M, Bronsky J, Campoy C, Domellöf M, Embleton N, Mischak I, et al. Complementary feeding: A position paper by the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN) committee on nutrition. *JPGN* 2017; 64: 119–132.
- › Ganho-Ávila A, Guiomar R, Sobral M, Pacheco F, Caparros-Gonzalez R, Diaz-Louza C et al. The impact of COVID-19 on breastfeeding rates: An international cross-sectional study. *Midwifery* 2023; 120: 103631.
- › Geneva: World Health Organization. Baby-Friendly Hospital Initiative: Revised, Updated and Expanded for Integrated Care. WHO Guidelines Approved by the Guidelines Review Committee; 2009.
- › Kislalya I, Braz P, Dias C, Loureiro I. A evolução do aleitamento materno em Portugal nas últimas duas décadas: dados dos Inquéritos Nacionais de Saúde. Instituto Nacional de Saúde Doutor Ricardo Jorge 2017.
- › McGuire S. World Health Organization. Comprehensive Implementation Plan on Maternal, Infant, and Young Child Nutrition. Geneva, Switzerland 2014. *Advances in Nutrition* 2015; 6(1): 134-135.
- › Riskin A, Mansovsky M, Coler-Botzer T, Kugelman A, Shaoul R, Hemo M et al. Tongue-Tie and Breastfeeding in Newborns—Mothers Perspective. *Breastfeeding Medicine* 2014; 9(9) 430–437.
- › Rito A, Mendes S, Figueira I, Faria M, Carvalho R, Santos T et al. Childhood Obesity Surveillance Initiative WHO Collaborating Centre for Nutrition and Childhood Obesity; 2023.
- › Santos Silva J, Flor-de-Lima F, Soares, H. Aleitamento Materno exclusivo: prevalência na maternidade e durante o segundo mês de vida. *Acta Portuguesa de Nutrição* 2021; 11, 18-20.
- › Thomas J, Bunik M, Holmes A, et al; American Academy of Pediatrics, Section on Breastfeeding, Council on Quality Improvement and Patient Safety, Section on Oral Health, Committee on Fetus & Newborn, Section on Otolaryngology-Head and Neck Surgery. Identification and Management of Ankyloglossia and Its Effect on Breastfeeding in Infants: Clinical Report. *Pediatrics* 2024; 154(2) e2024067605.
- › Tomara E, Dagla M, Antoniou E, Latrakis G. Ankyloglossia as a Barrier to Breastfeeding: A Literature Review. *Children* 2023; 10(12) 1902.
- › Walsh J, Tunkel D. Diagnosis and Treatment of Ankyloglossia in Newborns and Infants. *JAMA Otolaryngology-Head & Neck Surgery* 2017; 143(10) 1032.
- › World Health Organization (WHO), United Nations Children's Fund (Unicef). Global Breastfeeding Scorecard 2023 Rates of breastfeeding increase around the world through improved protection and support 2023; WHO/HEP/NFS/23.17.