

Maternal Perception of Breastfeeding in Children with Unilateral Cleft Lip and Palate: A Qualitative Research Work

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1 **Maternal perception of breastfeeding in children with unilateral cleft lip**
2 **and palate: a qualitative research work**

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20 **ABSTRACT**

21 **Background:** Unilateral cleft lip and / or palate (UCLP) is one of the most
22 common congenital craniofacial difference. The objective of this study was to
23 describe maternal perception of breastfeeding in children with unilateral cleft lip
24 and palate and to assess the role of breastfeeding counseling. **Methods:**
25 Qualitative descriptive method and phenomenological analysis were used to
26 analyze the narratives. 28 mothers of patients with nonsyndromic UCLP treated
27 with nasoalveolar molding (NAM) between April 2015 and April 2018 were
28 strategically selected and interviewed after NAM treatment. Framework analysis
29 was conducted for qualitative data. The CES University ethical committee
30 approved the study. **Results:** The findings resulted in six main categories: First
31 contact with the CLP program, access to early diagnosis and timely treatment,
32 perceptions of parents about health personnel on breastfeeding of CLP patients,
33 perceptions of mothers toward breastfeeding, perception of advantages and
34 disadvantages of the NAM technique regarding breastfeeding and assessment
35 of the CLP program. The interviewed mothers, both prenatally and postnatally,
36 stated the advantages of initiating the process prenatally. There are still
37 difficulties for reaching a timely diagnosis. Several mothers stated that health
38 professionals and assistants determined the hospitalization, installation of a
39 nasogastric tube or feeding through a baby bottle or syringe, which prevented the
40 first contact between mother and child. Even though the breastfeeding process
41 is difficult for these mothers, they acknowledged its immense advantages.
42 Interviewed mothers considered the use of the NAM advantageous as the
43 obturator allowed a better bottle-feeding process. The program generates
44 satisfaction, motivation, expectations and happiness to the mothers who initiated

45 this therapy with their children. **Conclusion:** The participants related difficulties
46 with breastfeeding. Mothers acknowledged the clinical results when using the
47 NAM obturator, as well as the support provided by the breastfeeding consultant.

48 **Key Words:** perception, experiences, breastfeeding, cleft lip and palate,
49 presurgical orthopedics, nasoalveolar molding.

50

51 **Background**

52 Cleft lip and/or palate (CLP) is one of the most common congenital craniofacial
53 difference and may produce in these patients' esthetic, functional and emotional
54 disorders [1]. It shows a prevalence of one per 1000 live births [2]. This condition
55 affects the patient and his/her family causing difficulties in emotional and social
56 development [3], feeding [4], breathing and the development of speech [5],
57 occlusion[6] and physical appearance [7]. Therefore, during initial orientation to
58 parents, is important to understand and assume the fact of having a child with
59 CLP can be difficult to cope [3].

60 Exclusive maternal breastfeeding is the best option to assure that the infant
61 receives the amount of essential nutrients needed for growth and development
62 during the first six months of life [8]. In addition, breast milk is the main choice to
63 prevent adverse health conditions and promote intellectual and language
64 development [9]. One of the complications exhibited by children with CLP is
65 feeding. An inability to create seal around the nipple during breastfeeding has
66 observed which leads to failure to generate enough negative intraoral pressure
67 during suction [10]. This situation could lead to inadequate nutrient intake and
68 could appear growth and development delay of the newborn [11].

69 Current advances in pre-surgical orthopedic treatment protocols for CLP,
70 including nasoalveolar molding (NAM) obturators, are an alternative for improving
71 the quality of the reparation process, since they actively improve the affected
72 nostril and passively the alveolar segments [12–14]. However, the treatment
73 protocol has observed that breastfeeding still presents difficulties, some of them
74 arising from the perception of mothers, such as discomfort to the infant and the

75 idea that the child is still hungry [2,11]. Even though research, including
76 quantitative approaches, has focused on the first reactions to the diagnosis and
77 measurement of stress levels during the first years of life [15,16], qualitative
78 investigations that assess the perception of mothers around breastfeeding and
79 CLP are scarce.

80 Qualitative studies with an exploratory phenomenological approach, look to
81 understand the social phenomena from the perspective of the interviewed
82 person, their experience, their relationships, motivations or intentions, beliefs and
83 the significance of their experiences in a specific situation [17].

84 Therefore, the purpose of this investigation is to describe maternal perception of
85 breastfeeding in children with unilateral cleft lip and palate and to assess the role
86 of breastfeeding counseling.

87 **Materials and Methods**

88 Institutional approval was obtained from the Ethics Committee of CES University,
89 through minute number 7429 September 29, 2014. All the mothers signed the
90 applicable informed consent before the data collection.

91
92 The study was a qualitative study with exploratory phenomenological approach;
93 the researchers tried to understand the perspective of the interviews, their
94 relationships, motivations and the experiences in a specific situation:
95 breastfeeding their children with unilateral cleft lip and palate treated with NAM,
96 after breastfeeding counseling.

97
98 Semi-structured interviews applied to 28 mothers of children with non-syndromic
99 unilateral cleft lip and/or palate (UCLP), with prenatal (32%) and postnatal

100 diagnosis (68%) mothers who consult to receive early orthopedic treatment with
101 NAM in the Clínica Noel Foundation interdisciplinary CLP program in Medellín,
102 Colombia, between April 2015 and April 2018. All mothers were born in Colombia,
103 as different cultures have different attitudes to CLP and the authors wished to
104 focus on issues relating to Colombian culture.

105 **Selection criteria**

106 Mothers of patients between 0 and 2 months of age with either prenatal or
107 postnatal diagnosis of non-syndromic UCLP were included. Mothers who could
108 not attend scheduled periodic appointments were excluded because NAM
109 requires weekly appointments.

110 Before the interviews, mothers received orientation by a certified international
111 breastfeeding consultant (GECH) using a breastfeeding personal education
112 program. The pediatric dentist (AMCZ) explained the NAM treatment and detailed
113 oral hygiene and diet counseling. Their UCLP's children received treatment with
114 NAM.

115 Mothers were divided in two groups. The first group received prenatal information
116 about the process of maternal breastfeeding by an international breastfeeding
117 consultant using a personal education program. Postnatal group received
118 information in the same way by an international breastfeeding consultant using a
119 personal education program, since they were unable to arrive at the CPL program
120 prenatally.

121 **Data collection**

122 Two field worker training sessions covered research ethics, obtained informed
123 consent and data collection, with the strongest focus being on developing

124 qualitative interview skills. Fieldworkers underwent extensive practice conducting
125 interviews using role-plays and applying the pilot test. Four pilot interviews were
126 carried out before the interviewer could strive to vary the focus of the phenomena
127 under study. During data collection, researchers listened to interviews on an
128 ongoing basis to monitor quality of interview skills, and feedback given to
129 fieldworkers as necessary. The participants were encouraged to describe their
130 feelings and experiences as fully and as deeply as possible. During the interview,
131 they were asking to give examples and to clarify ideas.

132 The interviews last between 60 to 90 minutes and were digitize and transcript.
133 The preliminary and emerging categories were analyzed in order to compare
134 results.

135 Baseline data was collect using a structured quantitative questionnaire, which
136 included information about participants' sociodemographic characteristics and
137 their infant feeding plans.

138 **Data analysis**

139 Mothers were requested in-depth interview guides to state whether they planned
140 to feed their baby breastmilk only, formula milk only, or both breast and formula
141 milk.

142 Two investigators carried out independent data analyses to establish their
143 consistency and reliability. Results were compared and minor variations
144 discussed, reviewed and resolved.

145 To preserve anonymity, codes were assigned to each participant based on the
146 group. Audio recordings and transcripts were stored at University CES in a

147 password protected file. In accordance with the methodology, transcripts were
148 code according to preliminary categories. Emerging categories were analyzed in
149 order to compare results and reach conclusions (Table 1).

150 Information collected reached saturation categories meaning that the information
151 did not reply and did not provide a new topic or intensify it [17].

152 Analysis of the interview data was based on predetermined research themes
153 (drawn from the interview guide), as well as inductive themes that emerged from
154 the interview data [18]. The data was grouped into analytical categories in order
155 to organize the information, and finally contribute to the writing the findings.

156
157 Framework analysis comprised five stages, beginning with a process of
158 familiarization with the transcripts to gain an overview of the content. This was
159 followed by the development of an analytical framework based on identified
160 research questions, as well as on themes that emerged. This framework was then
161 applied to the individual transcripts and data charted into categories based on
162 these identified themes. Finally, a process of mapping and interpretation was
163 undertaken.

164 **Results**

165 Data presented in Table 2 indicates participants' sociodemographic
166 characteristics.

167 The findings resulted in six main categories: i) first contact with the CLP program;
168 ii) access to early diagnosis and timely treatment; iii) perceptions of parents about
169 health personnel on breastfeeding of CLP patients; iv) perceptions of mothers

170 toward breastfeeding; v) perception of advantages and disadvantages of the
171 NAM technique regarding breastfeeding and vi) assessment of the CLP program.

172 **First contact with the CLP program**

173 The specialist who detected the anomaly during the second trimester ultrasound
174 referred prenatally diagnosed patients and their parents to the program. The
175 patients who received the diagnosis after birth were referred by friends, family
176 members or the medical staff that worked in the hospital where the patient was
177 born.

178 The interviewed mothers, both prenatally and postnatally, stated the advantages
179 of initiating the process prenatally: tranquility from the counseling of the
180 interdisciplinary team, psychological support, information about the procedures
181 that the child would endure and better acceptance of the infant's condition by the
182 parents:

183 *"I think it was very important because I now assimilate things better,*
184 *especially the risks and benefits of the whole treatment."* [E16]

185 *"We prepared ourselves psychologically so the impact would not be too*
186 *high, right? That helped us understand the feeding procedure and the*
187 *process with the obturator."* [E27]

188 **Access to early diagnosis and timely treatment**

189 There are still difficulties for reaching a timely diagnosis, especially for those
190 people who live in rural areas or for pregnant women who access the hospital
191 only at the time of delivery. These factors make early diagnosis difficult.

192 *“I was referred but I had already had the baby.” [E14]*

193 *“I was referred here but the baby had already been born, he was around 3*
194 *months old.” [E20]*

195 **Perceptions of parents about health personnel on breastfeeding of CLP**
196 **patients**

197 Several mothers stated that health professionals and assistants determined the
198 hospitalization, installation of a nasogastric tube or feeding through a baby bottle
199 or syringe, which prevented the first contact between mother and child.

200 *“The problem with the baby was that he was in the hospital and the process*
201 *stopped, it was suspended and the baby was fed through a tube.” [E2]*

202 *“To be honest, I did not breastfeed her because the cleft was wide open*
203 *when she was born. She was taken to the ICU, received the tube and was*
204 *left in the hospital for 10 days. I had missed the opportunity to breastfeed*
205 *her, I had no milk left.” [E17]*

206 The interviewed mothers stated that it seemed as if health professionals
207 considered breastfeeding impossible for these patients, which made the
208 promotion of breastfeeding difficult, despite the recommendations of the
209 World Health Organization (WHO) to breastfeed exclusively up to the six
210 months of age [19].

211 *“Well, a nurse told me that the baby had to be fed with a syringe and a*
212 *baby bottle so I told her that I wanted to feed him myself and she told me*
213 *that I was incapable of doing so.” [E11]*

214 Perceptions of mothers toward breastfeeding

215 Mothers deal with difficulties when they initiate the breastfeeding process since
216 children cannot perform adequate suction. Bottle-feeding from an early age,
217 using breast milk from the mother can be used [10]. Mothers revealed the efforts
218 to perform this process, their frustrations, sadness and despair that caused them
219 the inability to breastfeed their children.

220 *“Hard, it was very, very hard.” [E16], [E18]*

221 *“Well, sometimes you feel frustrated because you really want to breastfeed*
222 *her exclusively, both for her sake and for economic reasons.” [E27]*

223 Mothers who could start breastfeeding, performed it only for a short period of
224 time. Complications arose quickly for different reasons, which led them to make
225 the decision to abandon breastfeeding altogether.

226 *“I did not have enough breast milk to feed him, although a little came out.”*
227 *[E11]*

228 *“There was a time when he was malnourished or so they told me.” [E11]*

229 *“I feel like nothing comes out. I take a look at his mouth and it is dry, like*
230 *he does not have enough strength to suction milk.” [E1]*

231 Mothers stated other problems, such as inability to suction, how babies hold the
232 nipple, pressure by family members, fear of breastfeeding and even comparisons
233 with previous healthy children who were able to be breastfed for periods of up to
234 six months. The breastfeeding consultant (GECH). gave personal education

235 when parents need. They had consultant phone number and could call when they
236 need help.

237 *“My baby boy could not hold my breast and I did not produce enough*
238 *breast milk to feed him.” [E13]*

239 *“I was able to breastfeed my two other children, one up to two years of life*
240 *and the other up to four.” [E16]*

241 *“He loved breast milk, but I had to extract it because he was in the hospital*
242 *for 8 days and they always fed him through a baby bottle, so I extracted it*
243 *and gave it to him using the bottle.” [E23]*

244 Hospitalization of mothers is also difficult for the breastfeeding practice as the
245 mother-baby bond is broken. In addition, ignorance of this process, especially in
246 new mothers, led to the suspension of breastfeeding.

247 From the economic standpoint, the access to supplementary milk is an additional
248 cost to mothers of low income and consumption increases as the child grows,
249 which raises such expenses:

250 *“We always prepared the baby bottle with the milk they recommended, but*
251 *then we could not afford it anymore.” [E16]*

252 Despite such difficulties, mothers expressed and recalled the breastfeeding
253 process as a special connection with their children and communicated their
254 sadness because they wanted the process to last longer and be less difficult.

255 Even though the breastfeeding process is difficult for these mothers, they
256 acknowledged its immense advantages:

257 *“Babies develop better with breast milk, their mental development, their*
258 *hearing and vision, everything.” [E25]*

259 *“Everything, I do not know...their growth, the defense system, they are*
260 *healthier.”*

261 *“Everything, every vitamin, everything.” [E16], [E26]*

262 **Perception of advantages and disadvantages of the nasoalveolar molding**
263 **(NAM) technique regarding breastfeeding**

264 Interviewed mothers considered the use of the NAM advantageous as the
265 obturator allowed a better bottle-feeding process; the palatal cleft was narrower,
266 a nasal molding occurred and weight was gained.

267 *“Now, my baby uses the baby bottle more. It is less difficult and he does*
268 *not congest as much.” [E8]*

269 *“My boy has the wing of the nose uplifted, the palatal cleft is almost non-*
270 *existent, which helps him a lot.” [E5]*

271 *“From the moment he received the obturator, he has gained weight and is*
272 *chubbier.” [E11]*

273 The use of the obturator for 24 hours showed no complications for any of the
274 mothers. They did not perceive mood changes or sleep disorders. The cleaning
275 process and its use, in general, were not difficult.

276 A few mothers, who continued with the breastfeeding process while using the
277 obturator, manifested discomfort and lacerations as the main disadvantage of the

278 obturator. Dermatitis in the child was another disadvantage, but adhesives are
279 necessary to keep the tissues in place and improve the position of the columella.

280 *“When I tried to feed him using the obturator, the little wire poked me, so I*
281 *decided to remove the device.” [E11]*

282 *“I was breastfeeding him before using the obturator; once he started using*
283 *it, I could not feed him anymore. I had to just use the baby bottle.” [E12]*

284 *“He developed an allergy and it was horrible for him.” [E21]*

285 The correct use of the NAM obturator at home was always concerning as it was
286 a new procedure for the mothers and they wanted to perform it correctly for the
287 well-being of their children. One of the interviewed mothers stated:

288 *“As a suggestion, when they give you the obturator, they should include*
289 *not only general information, but also recommendations on the product for*
290 *us to be able to handle the obturator correctly at home.” [E15]*

291 **Assessment of the CLP program**

292 The program generates satisfaction, motivation, expectations and happiness to
293 the mothers who initiated this therapy with their children. All of them reported
294 that their children made great progress.

295 *“Wonderful! It has been a beautiful experience because when I realized*
296 *that my baby was coming with this condition, I never thought that there*
297 *could be a solution.” [E10]*

298 *“I am super happy. It is a great happiness because my baby has improved*
299 *a lot with the obturator.” [E28]*

300 Breastfeeding counseling provided by the program was valued as effective but
301 difficult to apply on a daily basis. The mothers receive additional counseling from
302 the breastfeeding consultant (GECH) when they encountered complications.

303 *“It was effective but it was really a fallacy because there is nothing you can*
304 *do when the baby is still in the womb. You have to wait until you have the*
305 *baby, and what you expect is quite different from the real situation.” [E15]*

306 Positive comments were also generated from close family members as they
307 witnessed the progress and acceptance of the child’s condition:

308 *“Well, they say everything is ok for the baby.” [E6]*

309 *“Everybody encourages me a lot. [E20]*

310 **Discussion**

311 A few qualitative studies permitted establishing similarities and differences with
312 the results of the present investigation. The Cartesian approach is still
313 predominant, even though available qualitative data allows further inquiry into the
314 experiences of individuals in specific situations, such as the condition in the
315 current study.

316 This study revealed difficulties regarding maternal breastfeeding in a sample of
317 UCLP Colombian children who were treated at Clínica Noel Foundation in
318 Medellín. Mothers positively valued the information provided by the
319 breastfeeding consultant. However, daily application was difficult. These results
320 are in agreement with those of Lindberg and Berglund and Madhoun [20,21] .

321 Some factors that discouraged maternal breastfeeding in children younger than
322 6 months of age included inadequate breastfeeding techniques, frequent use of
323 the baby bottle and early introduction of complementary foods. These factors
324 could create difficulties producing breast milk [4].

325 The mothers showed efforts to breastfeed their children, a product of what they
326 learned during lactation counseling, however, they privilege the use of the feeding
327 bottle and other techniques over maternal breastfeeding. This was due to suction
328 problems, sensation of low levels of milk in their breasts, milk coming out of the
329 baby's nose, social and family pressure, fear that the baby would lose weight and
330 early hospitalization, which do not ease the mother to child bonding. Several of
331 the reasons mentioned coincide with a quantitative study carried out in Porto
332 Alegre, Brazil [22] and the qualitative study by Lindberg and Berglund [20].

333 Garcez and Giugliani found that, in spite of the diverse difficulties reported and
334 the lack of professional support after discharge from the maternity wards, the
335 initiation rate and the duration of breastfeeding of children with cleft lip and palate
336 is compatible with successful breastfeeding [22].

337 Lindberg and Berglund [20] reported that, despite the difficulties, mothers were
338 aware of the importance of breast milk, which is in agreement with the results of
339 the current investigation, such as Colombian mothers. Owens described the
340 feeling of failure manifested by mothers when trying to breastfeed their babies.
341 Mothers found breastfeeding challenging so they needed support, especially
342 when babies showed additional feeding deficiencies [23]. A similar finding was
343 reported in our study, where mothers were deal with difficulties during the
344 breastfeeding process.

345 Amstalden Mendes *et al.* analyzed counseling to parents during the postnatal
346 period and identified resources used to feed their babies and concluded a lack of
347 attention to UCLP patients by health professionals [24]. This study showed that
348 health system factors and maternal-baby factors were the main precipitating
349 reasons why mothers failed to breastfeed.

350 Regarding the NAM, Goyal reported a breastfeeding frequency between 44% and
351 100%. Mothers who received counseling were more willing to breastfeed
352 compared to mothers who did not receive it (72% vs 44%). The results of this
353 study showed that treatment with the NAM reduced the breastfeeding practice.
354 In addition, some complications were evident when using the obturator, such as
355 the difficulty of approaching the baby to the breast [25].

356 Difficult situations with the health personnel due to a negative attitude toward
357 breastfeeding of UCLP children at birth, were reported by Lindberg and Berglund.
358 The Colombian mothers felt low medical support and lack of breastfeeding
359 information [20].

360
361 The breastfeeding of siblings without UCLP was easier in the Scandinavian
362 study [11]. In this study, the mothers valued the breastfeeding counseling but
363 they thought that their siblings were easier to feed than the child with CLP was.

364 **Conclusions**

365 In this study, breastfeeding children with CLP was a difficult process, though it
366 was vital and necessary. Thus, efforts should be directed toward a breastfeeding
367 program implementation with pregnancy CLP mothers, so they will have tools
368 that allow them to deal with the expected difficulties during early breastfeeding.

369 In addition, it revealed that health professionals must not become an obstacle in
370 the mother-child bonding. They should act based on attention protocols
371 formulated according to context and culture. They must provide knowledge and
372 support for mothers to make optimal feeding choices, increase mothers' self-
373 efficacy and facilitate breastfeeding success.

374 Professionals trained in breastfeeding are a very valuable resource for mothers
375 of children with CLP, as they support them and resolve breastfeeding concerns
376 and complications.

377 Another practical implication would be the encouragement to mothers who have
378 undergone this intervention to support either in person or through video, group,
379 or other modality new CLP mothers prenatal and postnatal. Forming a peer-peer
380 support group may help mothers cope with the complications of feeding their
381 infants.

382 The design of educational strategies help mothers cope with feeding difficulties,
383 using personal counseling, sending videos by email or WhatsApp or calling by
384 phone. An interdisciplinary approach is mandatory, especially during pregnancy,
385 since mothers can feel better prepared to receive their children. Finally, the
386 researchers suggest further investigation on improving accessibility to the
387 program and/or providing in-home breastfeeding support.

388 **Limitations**

389 Results of qualitative research cannot be inferred from the general population of
390 mothers with CLP children. Nevertheless, they provide useful information to
391 generate hypotheses of future investigations, for example, related to accessibility
392 to early prenatal diagnosis and access barriers to the health system.

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397 Conflicts of interest

398 The authors report no conflicts of interest.

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403 Availability of data and materials

404 The dataset or transcripts are available from the corresponding author on
405 reasonable request.

406 Authors' contributions

407 AMCZ and CMMD conceptualized the study and designed data collection
408 methods. GECH did breastfeeding support and consultancy. AMCZ supervised
409 collected data and CMMD performed qualitative analysis of the study and
410 performed statistical analysis of the data. AMCZ and CMMD contributed to writing
411 the manuscript. All authors critically reviewed and approved of the final
412 manuscript.

413 Ethics approval and consent to participate

414 Ethics approval for this study was obtained from the Biomedical Research Ethics
415 Committee at CES University # 7429, 2014. All participants signed a consent
416 form before the study began and voluntarily participating in the study. For
417 participants who were younger than 18 years, written consent was obtained from
418 a parent or legal guardian and assent from the participant. To preserve
419 anonymity, codes were assigned to each participant based on the area, type of
420 participant and number of the visit. Audio recordings and transcripts were stored
421 at CES University in a password protected file.

422 **Consent for publication**

423 Not applicable

424

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