

# Breastfeeding and speech-language pathology: knowledge and acceptance of nursing mothers of a maternity

## Aleitamento materno e aspectos fonoaudiológicos: conhecimento e aceitação de mães de uma maternidade

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### ABSTRACT

**Purpose:** To investigate the knowledge of mothers about breastfeeding and aspects of Speech-Language Pathology; to compare mothers from a Kangaroo unit to others in a Rooming-in, considering time of admission; and to verify the acceptance in the intervened group. **Methods:** Interventionist and comparative study with 163 mothers from a public maternity. The mothers were divided into two groups (G1 and G2) according to their type of allocation (Kangaroo Unit and Rooming-in). It was done an assertiveness test and guidelines with the mothers, focusing on breastfeeding, language, orofacial motricity/ speech and hearing aspects. Based on such aspects, guidelines were made and the acceptance test applied. In order to characterize the affirmatives and compare the knowledge between the groups, it was applied the Birnbaum's Three-Parameter Unidimensional Model, based on the Item Response Theory, and Mann-Whitney U Test for the estimated knowledge, with  $p < 0.05$ . Guidelines and Acceptance test have been performed, considering well accepted acceptance  $> 85\%$ . **Results:** Concerning the assertiveness test, the highest percentage of correct answers was achieved by language (G1=98%; G2=95%), followed by orofacial motricity/ speech (G1=45%; G2=39%) and audition (G1=36%; G2=30%). There were no statistical significant relationship between hospitalization time and knowledge. 97% accepted the guidelines. **Conclusion:** This health guidelines activity provided access to information, independently of time or type of hospitalization of the nursing mothers. The intervention good acceptance allows inferring about the viability of expand such practices in the hospital environment.

**Keywords:** Rooming-in care; Kangaroo-mother care method; Health promotion; Breast feeding; Humanization of assistance, Speech, language and hearing sciences

### RESUMO

**Objetivo:** Investigar o conhecimento de mães sobre aleitamento materno e aspectos fonoaudiológicos, comparando mães internadas na Unidade Canguru e no Alojamento Conjunto, considerando tempo de internação; e verificar a aceitação sobre a intervenção grupal realizada. **Métodos:** Estudo intervencionista e comparativo, com 163 mães de uma maternidade pública. As mães foram divididas em dois grupos (G1 e G2), conforme o tipo de internação (Unidade Canguru ou Alojamento Conjunto). Foi realizado o teste de assertividade com as mães, enfocando aspectos de aleitamento materno, linguagem, motricidade orofacial/fala e audição. Para caracterizar as afirmativas e comparar o conhecimento entre os grupos, foram aplicados, respectivamente, o modelo unidimensional de três parâmetros de Birnbaum, baseado na teoria de resposta ao item e o teste de Mann-Whitney, para nível de conhecimento estimado, com  $p < 0,05$ . Foram realizadas orientações e aplicado o teste de aceitabilidade, considerando-se bem aceito valores  $\geq 85\%$ . **Resultados:** Quanto à assertividade, o maior percentual de acertos foi em linguagem (98% do G1 e 95% do G2), seguido de motricidade orofacial/fala (72% de ambos os grupos), aleitamento materno (45% do G1 e 39% do G2) e audição (36% do G1 e 30% do G2). Não houve diferença entre tempo de internação e conhecimento desses aspectos abordados. Em aceitabilidade, o índice foi 97%. **Conclusão:** A atividade de educação em saúde proporcionou acesso à informação, independente do tempo e tipo de internação dos sujeitos envolvidos. A boa aceitabilidade da intervenção permitiu inferir sobre a viabilidade de serem ampliadas práticas dessa natureza no ambiente hospitalar.

**Descritores:** Alojamento conjunto; Método Canguru; Promoção da saúde; Aleitamento materno; Humanização da assistência; Fonoaudiologia

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## INTRODUCTION

Several practices of promotion of breastfeeding have been advocated. The *Iniciativa Hospital Amigo da Criança* (IHAC) purposes the “Ten Steps To Successful Breastfeeding” with a view to promote practices and guidelines in the pre, peri and post-natal period, and to be in accordance with the ‘Brazilian Norm for Commercialization of Food for Nursing and Children of First Infancy, Rubber Nipples, Pacifiers and Nursing Bottles’ (*Norma Brasileira de Comercialização de Alimentos para Lactentes e Crianças de Primeira Infância, Bicos, Chupetas e Mamadeiras* - NBCAL)<sup>(1)</sup>.

The Stork Network Program (SNP), recently implanted, supports such initiatives, because “aims to ensure the reproductive planning right to woman and humanization of assistance to pregnancy, childbirth and puerperium, as safe birth, health growth and development right to child”<sup>(2)</sup>.

Practices in breastfeeding promotions are indicated in the hospital environment and at Basic Health Units (BHU) focusing on preventing early weaning and proposing a better quality of life to newborns<sup>(3)</sup>. The guidelines to the mothers are considered essential in order to make them more instigated to breastfeed<sup>(4)</sup>.

Breastfeeding promotes newborns’ (NB) speech-language and audiology health in its several aspects: language, orofacial motricity/ speech and hearing. The guidelines comprehend from stomatognathic system functions, such as suckling, breathing, swallowing, mastication and speech<sup>(5)</sup>, to hearing aspects.

Practices in breastfeeding promotions offer activities of support to mothers for a better stay in hospitals<sup>(6)</sup>. Educative and supportive groups help mothers overcome obstacles in the period of admission, taking into consideration their differences and expanding the health professionals’ view towards patients<sup>(7)</sup>.

Organizing educational groups promotes knowledge exchange with parents and family on maternal care, children maturation and the importance of interaction between family and baby<sup>(8)</sup>, mainly their mothers<sup>(9)</sup>, in maternities.

Speech Therapists work in the period of hospitalization offering guidelines about breastfeeding and aspects of speech-language pathology<sup>(10)</sup>. It is expected that speech-language pathology actions bring up benefits for babies and their families<sup>(11)</sup>, in addition to favoring an earlier discharge, reducing expenses<sup>(12)</sup>.

The purpose of this study aimed to investigate the knowledge of mothers about breastfeeding and aspects of Speech-Language Pathology, considering type of allocation (Kangaroo Neonatal Intermediate Care Unit and Rooming-in Care) and time (days) of admission; and to verify the acceptance in the group meetings set.

## METHODS

This project submitted in the research group “Transition of probe feeding to breast in hospitalized newborns in a Kangaroo

Care Unit”, was approved by the Ethic in Research Committee of the *Universidade Federal de Sergipe* (UFS), under CAAE nº 02304812.0.0000.0058. This project was developed in the Kangaroo Neonatal Intermediate Care Unit (KNICU) and Rooming-in Care (RC) in a public maternity.

It’s an interventionist and comparative study that investigates the knowledge of postpartum mothers about breastfeeding and aspects of Speech-Language Pathology. One hundred sixty-three participant mothers were evaluated – this amount is consistent with the participant recruitment during time spent with this research project – for type of accommodation (KNICU or RC) and time of hospitalization.

Mothers were included in the study under the inclusion criteria of belonging to KNICU or RC, that accepted participating of the postpartum mothers groups about breastfeeding, Speech-Language Pathology and signed the informed consent form. The exclusion criteria were the non-hospitalization in those units as well as not having signed the informed consent form.

One hundred sixty-three participants were divided into two groups: Group 1 (G1) formed by 74 hospitalized postpartum mothers in the KNICU and Group 2 (G2) formed by 89 hospitalized postpartum mothers in the RC.

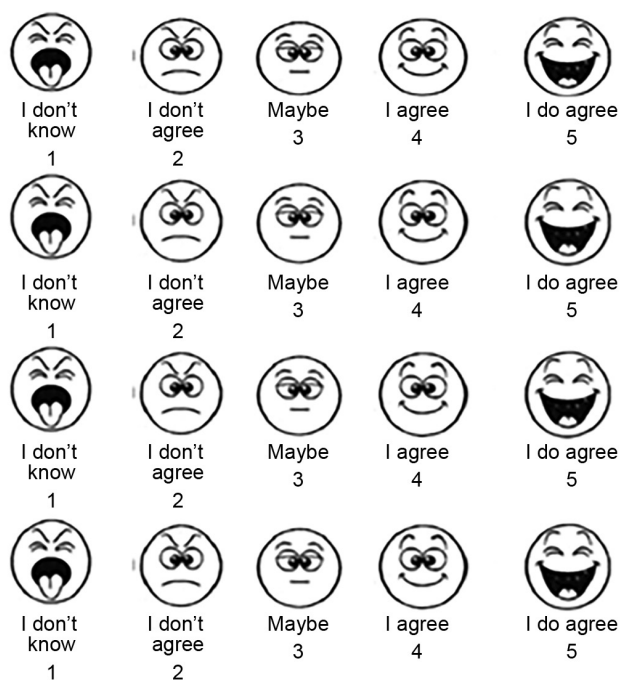
The time of hospitalization was calculated from the day of hospitalization of the newborn and the day of the group intervention on the mother.

The groups always had always been conducted by the same speech researches, previously trained and calibrated about addressed issues (used language, demonstration Doll/Breast and poster handling, fill protocols, among others). The intervention took place in the infirmary, composed by three beds. Each mother received guidelines only once. It was applied the assertiveness test consisting of four statements about maternal breastfeeding, language, orofacial myofunctional system, speech and hearing. The statements were formulated in an objective and non-inductive way, aiming to developing group intervention and research, being a non-validated strategy. The statements was:

1. In some women the breast milk is weak and does not nourish their babies;
2. The conversation and contact with parents and family improves the baby’s language development;
3. Breast sucking empowers the muscles used to speech;
4. Otitis could be caused by breastfeeding the baby lain down.

The Speech-Language Pathology researcher made the reading of each statement. The participant signed her opinion in a form (Figure1), without the help of any other participant/family member or professional. The alternatives were represented by faces that ensure the understanding of the form by the participants regardless their education level.

After the assertiveness test application, the group intervention were conducted with the participants for average time of 20 minutes with orientations, raising doubts, survey of any questions and interactions about maternal breastfeeding, speech



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Figure 1. Form of the assertiveness test

and language pathology. For this, we used dolls, mama's crochet and illustrative images.

By the end of the interventions, we applied the acceptance test to evaluate if the group intervention was well accepted or not by the target population. Each participant stated her opinion in the record sheet (Figure 2). The test was applied with each participant individually and confidentially (without the knowledge of the researcher). The participant could choose five options as follows: 1 – “I hated it”; 2 – “I didn't like it”; 3 – “Indifferent”; 4 – “I Liked it”; 5 – “I loved it”; represented by faces, that also ensure the understanding of the form by the participants regardless their education level.

We used Microsoft Excel 2007, SPSS for Windows version 17 and R Core Team, for database, graphs and statistical analysis, respectively. For each statement in assertiveness test, it was expected some answers considered as correct (Chart 1).

We used Birnbaum three parameter Unidimensional item response model to evaluate the knowledge level of each participant in the assertiveness test<sup>(13)</sup> consisting of discrimination, difficulty and guessing parameters of each question.

Chart 1. Correct answer to statements in the assertiveness test

Statement	Sentence	Correct answers
1	In some woman the breast milk is weak and does not feed the baby	2 – I disagree
2	The conversation and contact with parents and family improves the baby language development	4 – I agree or 5 – I totally agree
3	Breast sucking empowers the muscles used to speech	4 – I agree or 5 – I totally agree
4	Otitis could be caused by breastfeed the baby lying down	4 – I agree or 5 – I totally agree

Note: 1 = statement about breastfeeding; 2 = statement about language; 3 = statement about orofacial myofunctional system and speech; 4 = statement about listening



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Figure 2. Form of the acceptance test

The participant knowledge level and participant hospitalization time (in days) were described by mean, standard deviation, 1<sup>st</sup> and 3<sup>rd</sup> quantile in each studied group: G1 and G2.

The participant knowledge level and participant hospitalization time in the G1 and G2 groups were plotted with scatterplot. Mann-Whitney test evaluated differences between groups in mean hospitalization time and knowledge level, p-value under 0,05.

The acceptance test were computed in all groups (G1 and G2). The intervention was considered well accepted if the acceptability index (rate of the “I Like it” and “I love it” answers) is equal or higher than 85%<sup>(14,15)</sup>.

## RESULTS

We describe 163 participants by age, education level, previous orientations about breastfeeding and number of children. The participants were between 13 and 45 years old (mean age 25.34 years old).

Concerning level education, the biggest percentage was of 44.17% (72 mothers) with incomplete elementary school degree, followed by 25.77% (42 mothers) that completed high school. The other mothers were distributed into incomplete high school degree with 11.66% (19 mothers), complete elementary degree with 9.20% (15 mothers), complete undergraduate degree with 4.91% (8 mothers), incomplete undergraduate degree with 2.45% (4 mothers), incomplete undergraduate and technical degree with 0.61% (1 mother), mothers that did not study with 0.61% (1 Mother) and illiterate mothers with 0.61% (1 mother).

On previous guidelines about breastfeeding, 63.19% (103 mothers) had previously received guidance before the group intervention. It's understood that previous guidelines are not linked to this study, offered by several professionals who assisted these mothers in antenatal or in hospitalization condition,

in such places like health unities and maternity itself.

Relating to the number of children (not including the newborn) we observed a range of 0 to 11 children (mean of 1.02 children).

The four addressed statements are described by power of discrimination, difficulty and probability of correct answer at random (Table 1).

**Table 1.** Statement characterization for discrimination, difficulty and guessing

Statement	Discrimination	Difficulty	Correct answer at random
1	7.57	1.49	0.38
2	0.31	-10.80	0.05
3	8.72	-0.59	0.01
4	2.58	1.45	0.25

**Note:** 1 = statement about breastfeeding; 2 = statement about language; 3 = statement about orofacial myofunctional system and speech; 4 = statement about listening

The discrimination parameter identifies the participants with higher or lower knowledge about breastfeeding, speech and language pathology. Ranges from zero to infinite, since higher values indicates more power of discrimination. The statements 1 (breastfeeding) and 3 (orofacial myofunctional and speech) have higher values of discrimination against statements 2 (language) and 4 (listening).

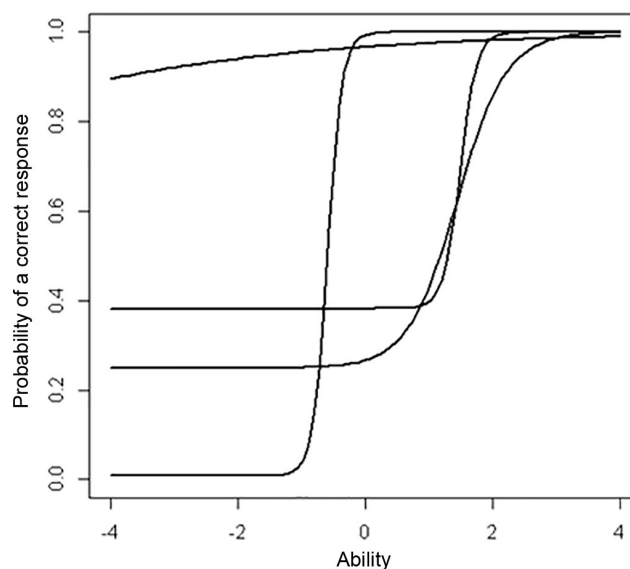
Difficulty ranges in the interval of +3 to -3. Positive values indicate higher difficulty. The statements 1 (breastfeeding) and 4 (listening) were considered more difficult against statements 2 (language) and 3 (orofacial myofunctional and speech).

The “correct answer at random” it is the probability of a participant give an right answer randomly. It ranges from zero to one. Higher values indicate higher probability of correct answer at random. The statement 1(breastfeeding) has the highest probability of correct answer at random and it has been considered a bad factor (Table 1).

The item information function (Figure 3) describes the statements. The curves that assume shapes of “S” indicate statements high power of discrimination. Thus statement 3 (orofacial myofunctional and speech) are the most discriminant against the other statements.

The beginning of curve inflection indicates the difficulty of the statement to be hit. Statements 1(breastfeeding) and 4(listening) are considered more difficult. The height of the start of the curve represents probability of occasional hit (correct answer at random) like 1 and 4 statements.

In the assertiveness test, it was calculated the percentage of right answers to each statement given by mothers, considering the split in groups G1 and G2.



**Figura 3.** Item response function

The four statements, second - language - had higher values of correct answers (98% in the group 1 and 95% in group 2), followed by third - orofacial myofunctional and speech (72% of success in both groups) - first - breastfeeding (success of 45% in group 1 and 39% in group 2) and fourth - audition (success in 36% of group 1 and 30% in group 2).

The knowledge level and hospitalization time had no statistical difference in groups G1 and G2. The participant hospitalization time in group G1 (0 to 143 days) which is bigger than group G2 (0 to 66 days), although with no statistical significant difference between the groups (Table 2). Higher hospitalization time is not related to higher participant knowledge level (Figure 4 and 5).

We obtained an Acceptance Index of 97% (70.8% of “I loved it” and 26.5% of “I liked it”).

**DISCUSSION**

It is fundamental to discuss about how mothers (subjects of this research) have been noticing the relation between Speech-Language Pathology health and breastfeeding.

The statement 1 (breastfeeding) which is about the concept of weak milk, less than half of the mothers marked the expected answers (45% for G1 mothers and 39% for G2 mothers). Such percentage is considered low because breastfeeding, including properties of human milk, constantly have been discussed in hospitals and maternities, e.g., organizing the good practices of breastfeeding and it follows the routine followed by the Ministry of Health<sup>(16-18)</sup> and the principles of BFHI<sup>(1)</sup>.

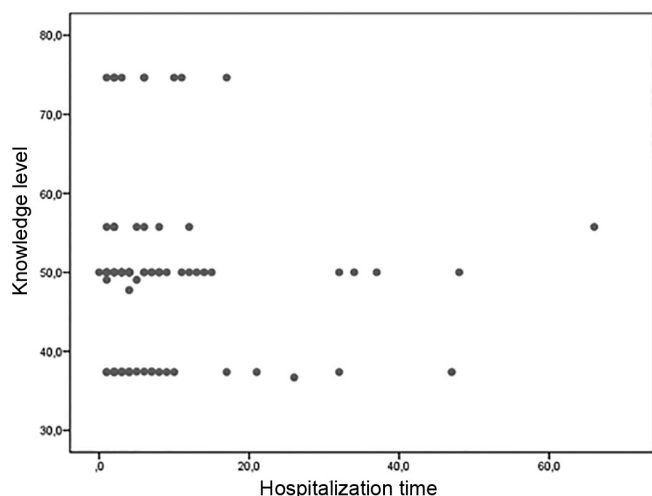
The statement 1 (breastfeeding) showed low percentage of correct answers, which may be related to the higher level of difficulty of the question when it is compared to the other statements. Moreover, this question showed a higher probability

**Table 2.** Mean comparison between hospitalized mothers in one studied unity about knowledge level and hospitalization time

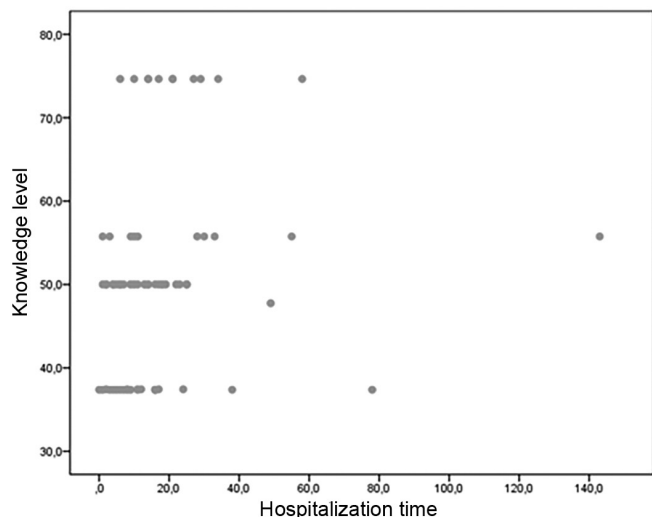
	KNICU		CPR		p-value
	Mean (SD)	[Q1-Q3]	Mean (SD)	[Q1-Q3]	
Knowledge level	50.84 (11.88)	[37.43-55.76]	49.49 (10,52)	[37.43-50.02]	0.454
Hospitalization time	17.23 (20.47)	[6-21.25]	8.33 (11.49)	[2-8.5]	0.075

Mann-Whitney Test ( $p < 0.05$ )

**Note:** KNICU = Kangaroo Neonatal Intermediate Care Unit; CPR = Common Postpartum Room; SD = Standard Deviation; Q1= first quartile; Q3 = third quartile



**Figure 4.** Relationship between knowledge level and hospitalization time of Nursing Mother in common postpartum room



**Figure 5.** Relationship between knowledge level and hospitalization time of Nursing Mother in Kangaroo neonatal intermediate care unit

of “getting it randomly” (negative factor), *i.e.*, the percentage of answers for Statement 1 might have been lower.

According to the weak milk myth, breast milk wouldn’t have adequate components to supply the nutritional necessities of babies. Such myth has influence on breastfeeding, providing early weaning, acting negatively on babies growth and development<sup>(3)</sup>.

Breastfeeding involves several aspects and it is important to

consider the previous knowledge of mothers, giving importance to the fact of orienting mothers about breastfeeding during antenatal period<sup>(19)</sup>. Nevertheless, it may happen that even mothers that have knowledge about breastfeeding and mothering, they do not know exactly the benefits that breastfeeding provides about general health<sup>(20)</sup> and speech-language health<sup>(5)</sup>.

Among the mothers in this study, more than half of them had already had guidelines about breastfeeding (63.19%), by several professionals in different places, before intervention execution, but it was evident that their doubts were not sufficiently clarified. However, previous experiences in another pregnancies and children may influence breastfeeding experience. In this study, as population characteristics, it was observed the number of children (not including the newborn) was 1,02 children. Authors refer that guidelines given to mothers not always depicts adequate breastfeeding, because other factors can interfere on that matter, *e.g.*, socioeconomic and cultural aspects<sup>(19)</sup>.

Thus, it is very important that health professionals conceive each mother in her singularity, doubts, fear and expectations, besides their myths and beliefs related to breastfeeding, with a view to the health team advise and justify correctly the aspects that interfere negatively in breastfeeding<sup>(21)</sup>.

Regarding the statement 2 (language), almost all of the mothers in both groups showed knowledge about the importance of the baby talking and contacting the parents and family members in order to stimulate their language development (98% G1 mothers and 95% G2 mothers got assertive answers).

This knowledge can be inherently related to popular knowledge, moreover, the relation between the language of a baby and their relationship with his parents and family members have been considered very important<sup>(8)</sup> and it is more and more approached in maternities<sup>(17)</sup>.

The G1 and G2 mothers stayed with their babies during the hospitalization, taking into consideration the proximity between them, as advised by the humanization policies<sup>(16-18)</sup>, promoting the strengthening of their relationships, fundamental for their language development.

A research verified that the knowledge of teenage pregnant mothers about speech-language in maternal and child health noticed that these mothers did not relate speech-language health to breastfeeding<sup>(22)</sup>. In this study, the age group varied from 13 to 45 years old (average 25.34 years old), not considered as a teenage group, which may have contributed for

major knowledge of these mothers, differently occurred in the aforementioned study<sup>(22)</sup>.

In the statement 3 (orofacial motricity/speech), it was noticed that most of the mothers knew about the importance of suckling on breast for fortification of the orofacial muscles (72% G1 mothers and G2 answered correctly). It is important to highlight that this statement had high rate of discrimination and “correct answers at random”, but its difficulty level was considered low.

The phono-articulatory organs were focused on the statement 3 (orofacial motricity), once it is involved in the speech development. The issue has a close relationship with Dentistry, raising the hypothesis that it has already been approached in Oral Health Teams, which may enable major access to information, promoting integration with other professionals of Family Health Teams<sup>(23)</sup>.

A study that focused on ten years of the Dental Care Program for pregnant and on prevention in oral and general health of future mothers reported the importance of the participation of pregnant in promoting actions to oral health for mothers and their babies, that deal with breastfeeding<sup>(24)</sup>, showing that there is a concern of focusing on the development of the sensory motor orofacial system, as a preventing measure. In the present study, the answers of the mothers revealed that such actions can also be broaden in order to reach a better index of knowledge on the subjects approached.

For the affirmative 4 (hearing), less than half of the mothers knew the importance of the more vertical position while breastfeeding with the intention to preventing otitis in their babies (36% G1 mothers and 30% G2 mothers marked the expected answers).

As well as there is relationship between Speech-Language Pathology and Dentistry in the aspects of orofacial motricity/speech, there is also a strong relationship between Speech-Language Pathology and Otolaryngology when relating them to hearing. However, it seems that there are not so effective programs about Hearing Health involving middle ear care in the preventive actions in Family Health Units. However, it has been propagated the obligatoriness of the Hearing Screening Test<sup>(25)</sup>, although it has not been the aspect investigated here.

It is important to mention that the affirmative related to hearing had few discrimination, being it considered the second most difficult and with more probability of the participants give a correct answer at random.

This study showed that the time of hospitalization of the mothers is not a determinant factor for the increase of assertive answers, not for G1 or G2, once it was not found differences concerning the assertiveness when considered such variable.

The type of hospitalization was not also a determinant factor on the knowledge of the questions, because there was not any significant difference between the groups, although there is the impression that the G1 mothers had more assertive answers than the G2s.

In the acceptance test, 70.8% of the mothers marked the option 5, “I loved it”, followed by the option 4, “I liked it”, with a total of 97%, which is possible to state that the group was well accepted for most of the mothers, and could be expanded in different health environments.

Few studies are found about the knowledge of mothers relating to breastfeeding and speech-language health of a baby. Group activities can be relevant to hospitalized mothers, dealing with subjects like breastfeeding and baby care as well as being important the participation of their families<sup>(26,27)</sup>.

Group interventions can exchange scientific and experiential knowledge between professionals and participants. Besides such actions promotes listening to participants, reflection about present difficulties in speech of others and discussion about addressed issue, relevant factors to learning, in this type of intervention<sup>(28)</sup>.

Besides the access to information, educational actions in health enables the welcome and the creation of a link between mother and health professionals, such as the promotion, the protection and the support to breastfeeding<sup>(26,29,30)</sup>.

It is essential to mention the importance of the multidisciplinary work, in which each health professional can contribute for breastfeeding related to their field, besides favoring it towards a full and more complete attention to mother and her child<sup>(5,21)</sup>. New studies deserve and can be broadened, seeking the effectiveness of breastfeeding, taking into consideration the reality and knowledge of the population involved.

## CONCLUSION

This study enabled a diagnosis in health about the knowledge of mothers at a maternity on the issues related to breastfeeding and speech-language health. This diagnosis indicates the necessity for BFHI public policies being more effective and broad, considering speech-language issues as well. New studies may be promoted too to investigate the previous experiences influence in knowledge with another pregnancies and children of this population.

The group intervention with the mothers was made as an activity of health education, intending to provide a better stay at the hospital, through experience exchange between the mothers’ knowledge and professionals.

The fact of the group of mothers being considered well accepted highlights the possibility of new actions involving breastfeeding and speech-language health, as well as the possibility of new studies that allow the diagnosis in health about the knowledge of hospitalized mothers at hospitals and maternities from the whole country.

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