










# Oral health literacy in mothers of children with microcephaly

 Tereza Maria Alcântara Neves<sup>1</sup>,  Marcia Regina Soares Cruz<sup>2</sup>,  Giselle Rodrigues de Sant'Anna Neves<sup>3</sup>,  José Carlos Pettorossi Imparato<sup>4</sup>,  Emanuelle Paiva de Vasconcelos Dantas<sup>5</sup>,  Weslany de Oliveira Dantas<sup>6</sup>,  Maria Nauside Pessoa da Silva<sup>7</sup>,  Victor Cavallaro Bottesini<sup>8</sup> ✉,  Danilo Antonio Duarte<sup>9</sup>

## Highlights

The absence of oral health promotion actions aimed at the family of children with microcephaly is visible and contributes to the development of oral pathologies.

The majority of mothers of children with microcephaly associated caries with poor hygiene and gum bleeding with no brushing care.

The main results of this study demonstrate a low level of literacy in the surveyed population, and of the total sample, the majority revealed a low level of knowledge in oral health.

<sup>1</sup> PhD, Department of Pediatric Dentistry, Centro Universitário UNINOVAFAPI, Brazil

<sup>2</sup> PhD, Department of Pediatric Dentistry, Centro Universitário Santo Agostinho, Brazil

<sup>3</sup> PhD, Department of Biomedical Engineering, São Leopoldo Mandic College, Brazil

<sup>4</sup> PhD, Department of Pediatric Dentistry, University of São Paulo, Brazil

<sup>5</sup> PhD, Department of Biomedical Engineering, Centro Universitário Uninassau Redenção, Brazil

<sup>6</sup> Master, Department of Dentistry, Centro Universitário Uninassau Redenção, Brazil

<sup>7</sup> PhD, Department of Health Biotechnology, Centro Universitário Uninassau Redenção, Brazil

<sup>8</sup> Master's Student, Department of Restorative Dentistry, São Paulo State University, Brazil

<sup>9</sup> PhD, Department of Pediatric Dentistry, São Leopoldo Mandic College, Brazil

## Abstract

**Aim:** This study aimed to evaluate the level of knowledge and literacy in oral health of mothers of children with microcephaly. **Methods:** It was used a sample consisting of 74 mothers of children with microcephaly, under multiprofessional monitoring at the rehabilitation center for special patients at the Microcephaly Clinic of CEIR. A validated questionnaire was used to assess the mothers' degree of knowledge about oral health and the BREALD-30 to assess the level of oral health literacy. **Results:** It was observed that most mothers (63.5%) studied between 8 and 11 years old. In most interviewees, family income was 1 minimum wage. There was a significant difference in the association between the level of literacy in oral health and family income ( $p < 0.05$ ) with a high level of literacy in oral health of mothers who had a monthly family income greater than 01 salary. Therefore, the low prevalence and severity of caries did not have a negative impact on health-related quality of life. **Conclusions:** The previous knowledge of literacy in the studied population contributes to a better communication between the professional and the family nucleus. As well as guides health promotion actions directed to children with microcephaly.

**Keywords:** Child; Health Literacy; Microcephaly; Oral Health

### Correspondence:

Department of Restorative Dentistry, São Paulo State University, Brazil  
E-mail address:  
[victorbottesini@gmail.com](mailto:victorbottesini@gmail.com)

Received: 10 Feb 2022

Accepted: 22 Mar 2022

Online First: 23 Mar 2022

## INTRODUCTION

In 2015, in northeastern Brazil, there were several reports of newborns with microcephaly, representing the first outbreak of Zika virus infection, associated with birth defects in infected pregnant women.<sup>1</sup>

The association between Zika virus and microcephaly was consolidated through necroscopy analyzes that showed a high concentration of viral material in the nervous tissue of stillborn people diagnosed with microcephaly. The Zika virus belongs to the arbovirus species being transmitted of the insect *Aesde aegypti*.<sup>1,2</sup>

Confirmation of fetal exposure due to Zika virus infection during pregnancy made it possible for the medical field to classify with Congenital Zika Syndrome, proving the virus's ability to cause birth defects with various signs and symptoms.<sup>2</sup>

Thus, microcephaly is conceptualized as a neurological condition, in which the brain, due to the underdevelopment and early closure of the fontanelles, presents itself with a brain perimeter lower than expected for age and sex.<sup>2,3</sup>

One of the congenital zika syndromes' symptom is microcephaly. Children with microcephaly have epilepsy as the most frequent alterations, delayed language and motor development, cardiological, renal and ophthalmological disorders, and cerebral palsy.<sup>3,4</sup>

Regarding the oral cavity, they may present delayed tooth eruption, micrognathism, bruxism, malocclusion, periodontal diseases, among others.<sup>4,5</sup> In addition to systemic and oral manifestations, it is important to highlight the direct impact on the functional autonomy and social insertion of these children.<sup>6</sup>

It is also glimpsed for the family, economic difficulties, lack of knowledge about the disease and how to deal with the affected child. It is

noteworthy the family's frustration of the diagnosis, at birth, of a sick child, generating reactions and feelings of rejection, forcing the family to live in a situation of discomfort and denial of the fact.<sup>6,7</sup>

The intersection of these facts creates a knowledge gap, which needs to be filled, in order to offer general and oral health care to the child, mitigate the emotional impact on the family's quality of life and establish coping strategies.<sup>8</sup>

From this perspective, the present research draws on health literacy, which represents the knowledge, motivation and competence of the individual to access, understand, evaluate and apply information for decision-making regarding health in their daily life. Oral health literacy or literacy follows the same logic as health literacy in general, as it involves obtaining information about oral health in order to make decisions that are relevant to maintaining the health of the oral cavity.<sup>9</sup> In order to measure oral health literacy in Brazil, BREALD-30 (Brazilian Rapid Estimate of Adult Literacy in Dentistry) is used, validated and consisting of an instrument to assess the individual's oral health literacy level, based on REALD-30 (Rapid Estimate of Adult Literacy in Dentistry), containing a list of 30 words, all related to oral health, in increasing order of difficulty.<sup>10</sup>

The lack of research with this population and the need to build guidelines on oral health care aimed at their caregivers, motivated the objective of this study, which is to evaluate the level of knowledge and literacy in oral health of mothers of children with microcephaly.

## METHODS

The research was approved by the Ethics and Research Committee with CAAE 92740618.7.0000.5374. The mothers were duly informed and oriented about the research and, after agreeing, signed a free and informed consent form.

## Study Sample

This study was carried out at the CEIR-Integrated Rehabilitation Center, from August to October 2018, located in the city of Teresina, capital of the State of Piauí, and considered a reference for medium and high complexity care aimed at rehabilitation and rehabilitation of special patients with physical – motor and / or intellectual disabilities from August to October 2018. Given the need to care for children who were born in late 2015, diagnosed with microcephaly, after an epidemic that is still under study, but related to cases in which mothers contracted the Zika virus, CEIR implanted, within their facilities, a clinic for the care and monitoring of these children. At the time of data collection, there were 78 babies with microcephaly, between 0 and 3 years old, with multiprofessional follow-up.

An analytical study was carried out, with a cross-sectional design. The sampling performed was non-probabilistic for convenience, with mothers of babies with microcephaly, who accompanied their children in multiprofessional care at the rehabilitation center for special patients. The final sample of the study consisted of 74 mothers of infants with microcephaly from 0 to 3 years of age registered at the CEIR Microcephaly Clinic who met the inclusion criteria; once a child was accompanied by a guardian other than the mother was excluded from the study.

## Data collection

The questionnaire on sociodemographic data, such as age, gender, parental education, family income (minimum wage in force during the survey period was R\$ 954.00) and family structure, was applied for comparative analysis with the literacy assessment questionnaire and oral health knowledge of mothers of babies with microcephaly.

After applying the socioeconomic questionnaire, the Brazilian version of the

REALD-30 questionnaire,<sup>10</sup> the BREALD-30,<sup>10</sup> the first translated evaluation instrument, was applied and validated for use in the adult Brazilian population. The BREALD-30 consists of 30 words related to dentistry, in increasing order of reading difficulty and the subject was asked to read the words out loud, in order to measure the level of literacy, that is, oral health literacy, observing errors and difficulties in pronunciation. For each word that was read aloud, the score was assigned 01 (one) for correct and 0 (zero) for when pronounced incorrectly, and for the score, a score ranging from 0 (zero) to 30 (thirty). The higher the scores indicates greater the level of oral health literacy.

The score value was related to the oral health literacy level of mothers of children with microcephaly, obeying the following cutoff point: less than 21 correct words was considered low literacy, 22 to 25 correct words, literacy was considered moderate and equal or greater than 26 correct words was considered a high literacy level.<sup>10</sup>

Then, to assess the level of oral health knowledge of mothers of children with microcephaly, an instrument was used that was developed and validated<sup>10</sup> in Brazil about knowledge in oral health, which was designed based on the IRT (Theory of Response to Item), focusing on the item, as the question is called and not only on the total of correct answers, attributing not only the right and wrong, but also the degree of difficulty.<sup>10</sup> It is a self-administered questionnaire composed of 19 closed questions, in which only one answer per question was checked. The score ranged from 0 (zero) to 19 (nineteen). The higher the scores indicates greater the level of knowledge in oral health. Knowledge was categorized according to the tertile into as follow: low: less than or equal to 10 (ten); moderate: equal to or greater than 11 (eleven) and less than or equal to 13 (thirteen); high: greater than or equal to 14 (fourteen).

Descriptive statistical analysis of the data was performed, based on the information obtained from the data collection instruments. For this, we used the Statistical Package for Social Science program, version (SPSS, Chicago, IL, USA), version 20.0, with Fisher and Chi-Square tests (CI = 95%, p <0.05). Oral health literacy and knowledge were considered dependent variables and socioeconomic variables were considered independent variables.

**RESULTS**

The final sample was composed of 74 mothers of children with microcephaly, and most of the children were above 24 months (74.3%). Table 1 shows the socioeconomic profile of the sample.

Table 1. Distribution of the sample of mothers of children with microcephaly, according to socioeconomic characteristics

	N	%
<b>Mother's age</b>		
Up to 30 years	52	<b>70.3</b>
Over 30 Years	22	29.7
<b>Mother's schooling</b>		
Up to 8 years	15	20.3
Between 8 and 11 years	47	<b>63.5</b>
Over 11 years	12	16.2
<b>Family income (Minimum Wage 937.00 R\$)</b>		
Below 1 minimum wage	16	21.6
1 minimum wage	37	<b>50.0</b>
Between 2 and 3 minimum wages	21	28.4
<b>Number of residents in the house</b>		
Up to 3 people	42	<b>56.8</b>
Over 3 people	32	43.2
Total	74	100.0

Table 2 shows the outcome of the application of BREALD-30, revealing that the words are listed in increasing order of difficulty of understanding and reading. The words with difficult pronunciation, or knowledge on the part of mothers reflected the low literacy, i.e., low oral health literacy.

Table 2. Distribution of the sample of mothers of children with microcephaly, according to the answers in the BREALD-30 instrument

	Incorrect n (%)	Correct n (%)
Sugar	8 (10.8)	66 (89.2)
Denture	1 (1.4)	<b>73 (98.6)</b>
Smoker	18 (24.3)	56 (75.7)
Enamel	10 (13.5)	64 (86.5)
Dentition	26 (35.1)	48 (64.9)
Erosion	61 (82.4)	13 (17.6)
Genetics	37 (50.0)	37 (50.0)
Incipient	68 (91.9)	6 (8.1)
Gum	6 (8.1)	68 (91.9)
Restoration	8 (10.8)	66 (89.2)
Biopsy	46 (62.2)	28 (37.8)
Rinse	38 (51.4)	36 (48.6)
Bruxism	46 (62.2)	28 (37.8)
Brush	5 (6.8)	69 (93.2)
Bleeding	17 (23.0)	57 (77.0)
X-ray	22 (29.7)	52 (70.3)
Film	50 (67.6)	24 (32.4)
Halitosis	60 (81.1)	14 (18.9)
Periodontal	62 (83.8)	12 (16.2)
Analgesia	52 (70.3)	22 (29.7)
Endodontics	63 (85.1)	11 (14.9)
Malocclusion	69 (93.2)	5 (6.8)
Abscess	62 (83.8)	12 (16.2)
Biofilm	72 (97.3)	2 (2.7)
Fistula	71 (95.9)	3 (4.1)
Hyperemia	71 (95.9)	3 (4.1)
Orthodontics	31 (41.9)	43 (58.1)
Temporomandibular	71 (95.9)	3 (4.1)
Hypoplasia	71 (95.9)	3 (4.1)
Apicectomy	74 (100.0)	<b>0 (0.0)</b>
	Mean (standard deviation)	Median (minimum and maximum value)
Time to answer	75.1 (46.7)	60.0 (20-26)
Total of correct answers	12.5 (4.2)	12.0 (2-25)

Table 3 shows the data for the analysis between the level of oral health literacy and socioeconomic variables. There was a significant difference in the association between the level of oral health literacy and family income ( $p < 0.05$ ), with the highest level of oral health literacy associated with mothers who represented monthly family income from 2 to 5 minimum wages (71.5%)

Table 4 shows that, of the 74 mothers, 58 (78.4%) considered the caries a disease caused by lack of hygiene, whose prevention should be by brushing teeth after eating sweets and meals (79.7%). In addition, 47 (63.5%) associated plaque with a yellowish mass composed of food rests. Of the total sample surveyed, in general, 45 (60.8%) had low level of knowledge on oral health, 9 (12.2%) had moderate level of knowledge and 20 (27%) showed a high level of knowledge.

## DISCUSSION

The main results of this study demonstrate a low level of literacy in the surveyed population. Of the total sample, the majority revealed a low level of knowledge in oral health.

Regarding the socioeconomic profile, it was found that the children were accompanied by their mothers, most of whom had up to 11 years of schooling and had an income source of up to one minimum wage. In addition, mothers over the age of 30 years old abandoned their studies early, dedicating exclusive assistance to their children, due to their physical and motor limitations. These data are in line with those of Barbieri et al.<sup>11</sup>, reaffirming that mothers are predominantly responsible for the education and health care of their children, and that this level of education enhances the level of knowledge and care about oral health of children.<sup>11</sup>

Despite the majority of mothers of children with microcephaly having abandoned their studies, with the claim of supporting their children, they presented basic notions of oral care. This knowledge came from professional guidance and obtained from multidisciplinary consultations that took place at the Reference Center, where the present research was conducted.

Table 3. Distribution of the sample of mothers of children with microcephaly, according to association between literacy and socioeconomic factors

Variables	BREALD- 30			p-value
	Low n (%)	Low n (%)	Low n (%)	
<b>Mother's age</b>				0.730
Up to 30 years	18 (34.6)	18 (34.6)	18 (34.6)	
Over 30 years	7 (31.8)	7 (31.8)	7 (31.8)	
<b>Mother's schooling</b>				0.498*
Up to 8 years	7 (46.7)	7 (46.7)	7 (46.7)	
Between 8 and 11 years	16 (34.0)	16 (34.0)	16 (34.0)	
Over 11 years	2 (16.7)	2 (16.7)	2 (16.7)	
<b>Family income</b>				<b>0.011</b>
Below 1 MW	8 (50.0)	8 (50.0)	8 (50.0)	
1 MW	15 (40.6)	15 (40.6)	15 (40.6)	
Between 2 and 3 MW	<b>2 (9.5)</b>	<b>2 (9.5)</b>	<b>2 (9.5)</b>	
<b>Number of residents in the house</b>				0.351
Up to 3 people	16 (38.1)	16 (38.1)	16 (38.1)	
Over 3 people	9 (28.1)	9 (28.1)	9 (28.1)	
Total	<b>30 (40.5)</b>	<b>30 (40.5)</b>	<b>30 (40.5)</b>	

Linear Trend Test; \* Fisher's exact test

Table 4. Distribution of answers about knowledge in oral health of mothers of children with microcephaly

	N	%		N	%
<b>What is caries?</b>			<b>It is important to go to the dentist even without caries.</b>		
It's not a disease	6	8.1	Yes	73	98.6
Illness caused by poor hygiene	58	78.4	No	1	1.4
Hole in the tooth caused by the antibiotic	8	10.8	<b>In case of toothache, what should be done?</b>		
Not formed tooth	2	2.7	Search for a dentist	71	95.9
<b>How long can permanent teeth last?</b>			Drip some medicine on the tooth	3	4.1
Adolescence	4	5.4	<b>What is the best way to perform oral health?</b>		
Up to 40 years	17	23.0	Brush the teeth hard	8	10.8
70 at most	19	25.7	Use hard toothbrush	1	1.4
Until the person dies	34	45.9	Use lots of toothpaste	2	2.7
<b>What is the plaque?</b>			Brush the teeth gently and floss	63	85.1
Plaque used to prevent caries	11	14.9	<b>You should brush your teeth.</b>		
Device that hurts the mouth	4	5.4	Just to have good breath	5	6.8
Hard layer on the tooth surface	9	12.2	Just to look better	2	2.7
Yellowish mass of food rest	47	63.5	Remove food rests	66	89.2
Plaque used to correct crooked tooth	3	4.1	Because the taste of the paste is good	1	1.4
<b>How is the ideal toothbrush?</b>			<b>If you don't brush, what can happen?</b>		
Big and hard	3	4.1	Strong teeth	5	6.8
Big and soft	15	20.3	Healthy gum	5	6.8
Medium and hard	2	2.7	Caries and bad breath	58	78.4
Medium and soft	27	36.5	White teeth	6	8.1
Small and hard	8	10.8	<b>What is the best way to prevent inflammation of the gums?</b>		
Small and soft	19	25.7	Using toothbrush	7	9.5
<b>What does floss do?</b>			Using only mouthwash	7	9.5
Only for cleaning bottom teeth	10	13.5	Using brush and floss	53	71.6
Only for cleaning front teeth	4	5.4	Not eating sweets	7	9.5
To remove food rests and plaque	57	77.0	<b>What is the best way to keep your gums healthy?</b>		
Flossing is not important	3	4.1	Not eating sweets	12	16.2
<b>What can cause bleeding gums?</b>			Brushing the teeth and flossing	61	82.4
Eating too much sweet	6	8.1	Mouthwash with water	1	1.4
Eating lots of cold and hot foods	4	5.4	<b>What should be done if your gums bleed?</b>		
Not taking proper care of oral hygiene	62	83.8	Stop brushing	3	4.0
Nothing causes bleeding as it is normal	2	2.7	Take some medicine	2	2.7
<b>What is the best way to prevent caries?</b>			Wash only with water	2	2.7
Sugar	2	2.7	Find a dentist	66	89.2
Brush once a day	10	13.5	Anything	1	1.4
Eat candy	3	4.1	<b>What is fluoride?</b>		
Brush your teeth after eating sweets and meals	59	79.7	Medicine to cure caries	9	12.2
<b>What should be done to have a healthy mouth?</b>			Product to strengthen teeth avoiding caries	50	67.6
Going to the dentist	5	6.8	White teeth product	13	17.6
Cleaning the mouth with the finger	1	1.4	Product that does not let the tooth hurt	2	2.7
Brushing the teeth and flossing	65	87.8	<b>When fluoride is important?</b>		
Mouthwash with water	3	4.1	Only in childhood	7	9.5
<b>Thinking about oral health, how should sweets be consumed?</b>			Only in adulthood	1	1.4
Never	12	16.2	At all life stages	66	89.2
Anytime	47	63.5	<b>Total</b>	74	100.0
After main meals	7	9.5			
Only in the morning	1	1.3			
Never consume at night	7	9.5			

Scientific evidence reinforces that low family income is closely linked to low perception and low knowledge of ideal oral health condition.<sup>8</sup> This statement fits most mothers in this study, who survive on government aid of 01 minimum wages as the only source of income, invariably used to meet all family needs. The economic conditions presented by the mothers of children with Zika virus have a significant influence on habits, behaviors and are associated with the knowledge, perception and ability to manage the health condition of the mother and the whole family. Thus, the search for specific institutions such as CEIR is, in addition to medical assistance, a search for a humanized reception and that fills the gap of misinformation about microcephaly and its sequelae, since these mothers are not accustomed to the psychomotor problems of their children.<sup>12</sup>

We reinforce that the majority of mothers of children with microcephaly associated caries with poor hygiene, bacterial plaque as a remnant of food, gum bleeding with no brushing care. This denotes a correlation of cause and effect, notable in our results and in line with those of Barbieri et al.<sup>11</sup> Likewise, they demonstrated knowledge about the visit to the dentist and the importance of fluoride, corroborating studies with mothers and caregivers of children with cerebral palsy, who report the need for hygiene oral inserted in daily care, even with the difficulties arising from physical-motor limitations.<sup>13,14</sup>

Although most of the subjects in the sample of this research attended high school, it is evident the low level of literacy, which in turn is linked to economic conditions.

Studies show that a high level of parental literacy prevents the development of biofilm-dependent oral pathologies and excessive sugar consumption.<sup>15,16</sup>

It is noteworthy that the majority of mothers of children with microcephaly consider visiting the dentist to be important, even though their

children do not have caries. This data reinforces the perception of the need for oral health care, despite low literacy, and emphasizes the relevance of guidance on this care, given that the children studied here participate in a multidisciplinary care program that includes oral health. On the other hand, Baskarados et al<sup>9</sup> state that individuals with low oral health literacy do not value going to dental offices and are more likely to neglect consultations.

The absence of oral health promotion actions aimed at the family of children with microcephaly is visible and contributes to the development of oral pathologies. Thus, strategies and guidelines as well as the strengthening of multidisciplinary actions should be encouraged. Controlling vectors, speeding up the diagnosis and treatment of pregnant women with Zika virus and offering protection and care to infected children are mandatory attitudes to achieve ideal general and oral health conditions, procedures performed at CER, and which are reiterated by other studies.<sup>16,17</sup>

There was a difficulty for mothers involved in the research to understand some words used in Dentistry. Some authors cite this as an obstacle that can prevent researchers from a correct image.<sup>7,18</sup> This limitation, also observed in our study, may be intrinsic to BREALD-30, which measures the recognition of words and not necessarily their understanding.<sup>18,19</sup>

On the other hand, methodological care during the research and in obtaining the answers to the questionnaire increases the power of inference and analysis of the results. In addition, the BREALD-30 instrument has adequate and valid psychometric properties for measuring oral health levels.<sup>19</sup>

The family is appointed as a propagating agent for the ideal methods of maintaining children's oral health, especially in the first years of life. Thus, communication between health professionals and the family must be efficient and

effective. In this context, the previous knowledge of literacy in a population allows for a narrowing of the communication between professional and population, establishing health education strategies transmitted in a simple, frank and understandable way.

## CONCLUSIONS

The low prevalence and severity of caries did not have a negative impact on HRQoL. The previous knowledge of literacy in the studied population contributes to a better communication between the professional and the family nucleus. As well as guides health promotion actions directed to children with microcephaly. rumentation technique and irrigating solution in addition to the inherent anatomy of the root canal system.<sup>17</sup>

## REFERENCES

1. Schuler-Faccini L, Ribeiro EM, Feitosa IML, Horovitz DDG, Cavalcanti DP, Pessoa A, et al. Possível associação entre a infecção pelo vírus zika e a microcefalia — Brasil, 2015. *MMWR Morb Mortal Wkly Rep* 2016;65:1–4
2. Ambrogi IG, Brito L, Diniz D. The vulnerabilities of lives: Zika, women and children in Alagoas State, Brazil. *Cad Saúde Pública* 2020;36:00032020
3. Moro J da S, Marega T, Romagnolo FU. Microcephaly caused by the Zika virus: dental care. *Rev Gaúch Odontol* 2019;67:2019001
4. Cruz MRS, Neves TMA, Neta NBD, Silva JR da, Duarte DA, Imperato JC, Sant'Anna GR de. Oral conditions of children with microcephaly. *Braz J Health Rev* 2021;4:8378–8396
5. Santos-Pinto CDB, Soares-Marangoni D de A, Ferrari FP, Ajalla MEA, Venancio FA, Rosa TS da, et al. Health demands and care of children with congenital Zika syndrome and their mothers in a Brazilian state. *BMC Public Health* 2020;20:1–10
6. Cruz MRS, Neves TMA, Neta NBD, Duarte DA, Imperato JCP, Sant'Anna GR de. Impacto das condições bucais na qualidade de vida relacionada à saúde bucal de crianças com microcefalia. *Int J Dev Res* 2021;11:43519–43525
7. Dieng S, Cisse D, Lombraill P, Azogui-Lévy S. Mothers' oral health literacy and children's oral health status in Pikine, Senegal: A pilot study. *PLoS One* 2020;15:0226876
8. Belila N de M, Martins RJ, Garbin CAS, Borghi WMMC. Socioeconomic level and the parents' perception of the impact of oral diseases on their children's quality of life. *Braz J Oral Sci* 2017;15:171–175
9. Baskaradoss JK. Relationship between oral health literacy and oral health status. *BMC Oral Health* 2018;18:172-175
10. Junkes MC, Fraiz FC, Sardenberg F, Lee JY, Paiva SM, Ferreira FM. Validity and Reliability of the Brazilian Version of the Rapid Estimate of Adult Literacy in Dentistry--BREALD-30. *PLoS One* 2015;10:0131600
11. Barbieri W, Peres SV, Pereira C de B, Neto JP, Sousa M da LR de, Cortellazzi KL. Sociodemographic factors associated with pregnant women's level of knowledge about oral health. *Einstein (Sao Paulo)* 2018;16:AO4079
12. Leão JC, Gueiros LA, Lodi G, Robinson NA, Scully C. Zika virus: oral healthcare implications. *Oral Dis* 2017;23:12–17
13. Teixeira GA, Silva AN da, Miranda LSMV de, Silva MPM da, Cavalcante EF de O, Enders BC. Theoretical care model for children with congenital Zika virus syndrome in the family context. *Rev Lat-Am Enferm* 2021;29:3458
14. Siqueira RMP de, Marinho ABA da S, Santos MTBR dos, Cabral GMP. Dental care for children with Congenital Zika Syndrome. *Rev Gaúch Odontol* 2020;68:20200014
15. Sowmya KR, Puranik MP, Aparna KS. Association between mother's behaviour, oral health literacy and children's oral health outcomes: A cross-sectional study. *Indian J Dent Res* 2021;32:147–152



16. Vilella KD, Assunção LR da S, Junkes MC, Menezes JVNB de, Fraiz FC, Ferreira F de M. Training and calibration of interviewers for oral health literacy using the BREALD-30 in epidemiological studies. *Braz Oral Res* 2016;30:90-95
17. Jr WFV, Lee JY, Baker D, Divaris K. Oral health literacy among female caregivers: impact on oral health outcomes in early childhood. *J Dent Res* 2010;89:1395–1400
18. Garnica-Palazuelos JC, Bermudez M, Cota-Quintero JL, Bueno-Acuña G, Santana-Delgado S, Larrinua-Pacheco A, et al. Assessment of oral health literacy of principal caregivers and its association with dental caries in Mexican disabled pediatric patients. *Contemp Pediatr Dent* 2021;2:151–157
19. Vilella KD, Alves SGA, Souza JF de, Fraiz FC, Assunção LR da S. The Association of Oral Health Literacy and Oral Health Knowledge with Social Determinants in Pregnant Brazilian Women. *J Community Heal* 2016;41:1027–1032

#### **How to cite this article:**

Tereza Maria Alcântara Neves, Marcia Regina Soares Cruz, Giselle Rodrigues de Sant'Anna Neves, José Carlos Pettorossi Imparato, Emanuelle Paiva de Vasconcelos Dantas, Weslany de Oliveira Dantas, Maria Nauside Pessoa da Silva, Victor Cavallaro Bottesini, Danilo Antonio Duarte. Oral health literacy in mothers of children with microcephaly. *Contemp Pediatr Dent* 2022;3(1):15-23

#### **Declarations**

**Acknowledgements:** *This article is based on a doctoral thesis.*

**Conflict of Interest Statement:** *Authors disclose no potential conflicts of interest.*

**Ethics Statement:** *This study was approved by Ethics and Research Committee with CAAE 92740618.7.0000.5374.*

**Informed Consent:** *Informed consent were obtained from all legal guardians.*

**Author contributions:** *Conception and design: All Authors; Acquisition of data: TMAN, MRSC, GRSN, JCPI, EPVD, MNPS, VCD, DAD; Interpretation of data: TMAN, GRSN, WOD, DAD; Drafting article: TMAN, GRSN, DAD; Revision article: All Authors; Final approval: All Authors*

**Funding:** *This work is not financed.*

**Data Availability:** *The data used to support the findings of this study can be made available upon request to the corresponding author.*

**Peer-review:** *Externally double-blinded peer-reviewed.*