

Original articles

Photobiomodulation in speech-language-hearing therapy: a profile of professional practice and the level of information of Brazilian speech-language-hearing therapists

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ABSTRACT

Purpose: to know the profile of Brazilian speech-language-hearing (SLH) therapists and their level of information on the use of low-level laser photobiomodulation.

Methods: an observational, cross-sectional, quantitative study conducted with a self-administered online questionnaire related to the professional education, work, and knowledge of SLH therapists on low-level laser photobiomodulation. Two hundred sixty-one speech-language-hearing therapists of both sexes participated in the research. The data were analyzed with descriptive and inferential statistics.

Results: the speech-language-hearing therapists had graduated predominantly 10 to 20 years before, their highest degree was mainly specialization, and most of them worked in the fields of oral-motor functions, dysphagia, voice, language, and audiology. Most of them knew photobiomodulation and its use in SLH therapists; also, they agreed on using a low-level laser as a therapeutic resource. Even so, most did not use it in clinical practice, although those who did, reported greater patient adherence. Statistical significance was verified for the association between laser use and access to resolution number 541 of the Federal Speech-Language-Hearing Council, time in the profession, main specialization, and required qualification.

Conclusion: the participating speech-language-hearing therapists showed knowledge on low-level laser photobiomodulation and its applicability. However, most of these professionals did not use the resource yet.

Keywords: Speech, Language and Hearing Sciences; Speech Therapy; Lasers; Laser Therapy; Low-Level Light Therapy

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INTRODUCTION

Speech-language-hearing (SLH) pathology is a field of health encompassing a broad range of training, education, research, prevention, assessment, diagnosis, development, improvement, and (re)habilitation of the aspects of human communication and orofacial functions, from childhood to old age. The practice of professionals who work in this field has been changing over the years, while the research to better direct the evidence-based practice has been increasing.

Health-related technology has been growing steadily, with noticeable benefits from implementing the new resources and therapeutic techniques, leading to a more effective therapy¹. In this innovative scenario, SLH therapy has been improving its use of technologies associated with conventional therapy. One of such technologies is photobiomodulation – a therapeutic technique using light, which acts upon biological activity causing physiological changes^{2,3}. This technique uses, among other resources, low-level laser (LLL), which can be helpful in SLH therapy when associated with practices traditionally used in the field^{4,5}.

In March 2019, the use of this resource in SLH practices was regulated by the Brazilian Federal SLH Council (*Conselho Federal de Fonoaudiologia - CFFa*) with Resolution no. 541⁶. LLL is a noninvasive resource used in photobiomodulation therapy that consists of irradiating light on a given place^{7,8}. This resource uses electromagnetic radiation with visible and near-infrared wavelengths, of which the most used wavelengths in SLH photobiomodulation are the red and the infrared⁹.

LLL has been increasingly used for being a relatively safe technique, as it does not expose the patient to predictable risks or damages. However, despite being an easy-to-use procedure, it requires a qualified professional for the results to be satisfactory, based on knowledge of its intervention principles. The desired therapeutic effects need to be established, as well as the correct dosage, the administration time, the irradiation points, and the energy flow mode, whether pulsatile or continuous^{7,9,10}.

The photobiomodulation can benefit various SLH treatments, with satisfactory results especially in oral-motor functions and dysphagia^{4,11}. Although most of the research and interventions occur in these fields, the audiology specialists have also been investing in LLL as an intervention resource, as seen in research on the rehabilitation of patients with tinnitus^{12,13}.

Given the scarcity of research in the scientific literature involving the use of photobiomodulation in SLH therapy and the recently issued CFFa resolution, this study aimed to know the profile of Brazilian SLH therapists and their level of acquaintance with the use of the LLL technique.

METHODS

The research project was previously submitted to the evaluation of the Human Research Ethics Committee of the Department of Health Sciences at the Federal University of Paraíba (*Universidade Federal da Paraíba - UFPB*), PB, Brazil, being approved with evaluation report number 4.103.029. All the volunteers of the study had access to the informed consent form and agreed to participate.

This is an observational, cross-sectional, quantitative study. A total of 261 SLH therapists of both sexes participated in the study. They were selected by convenience, with the eligibility criteria of being a professional with an SLH bachelor's degree, working in Brazil.

The research was carried out with an online questionnaire disseminated via social media and message applications. Every Friday for 4 weeks, a pamphlet of the research was shared along with a link to Google Forms for the volunteers to access the informed consent form and the questionnaire of the study.

The data, consisting of the answers of the volunteers to the adapted questionnaire, were collected between June and July 2020. It was based on a previous study¹⁴ and had 34 questions – seven open-ended and 27 closed-ended questions – encompassing the SLH therapist's profile, professional education, work, and knowledge of photobiomodulation, as presented in the Appendix.

The data were organized and categorized in Microsoft Excel spreadsheets for data analysis. Descriptive statistical analysis was conducted with measures of frequency and standard deviation. Inferential statistics used the Pearson chi-square association test. The data were analyzed with the Statistical Package for the Social Sciences (SPSS), trial version 22. Values lower than 1% were considered significant.

RESULTS

The research was intended for Brazilian SLH therapists, and it counted with the participation of

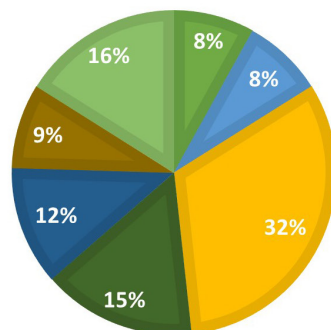
professionals from various regions. However, the states with the highest number of participants were Paraíba (28%), São Paulo (21.5%), Pernambuco (8.8%), Minas Gerais (8%), and Rio de Janeiro (6.1%).

The sample's mean age was 38.02 years (SD = 11.11). The highest education degree of most of the professionals was specialization, followed by doctor's

degree, master's student, master's degree, specialization student, and bachelor's degree, as shown in Figure 1. Most of the professionals had been working in the field for 10 to 20 years (33.71%), followed by 1 to 5 years (25.67%), 21 years or more (24.9%), 5 to 10 years (8.42%), and up to 1 year (7.27%).

HIGHEST EDUCATION LEVEL

■ BACHELOR'S DEGREE ■ SPECIALIZATION STUDENT ■ SPECIALIZATION DEGREE
■ MASTER'S STUDENT ■ MASTER'S DEGREE ■ DOCTORAL STUDENT
■ DOCTOR'S DEGREE



Caption: n = 261

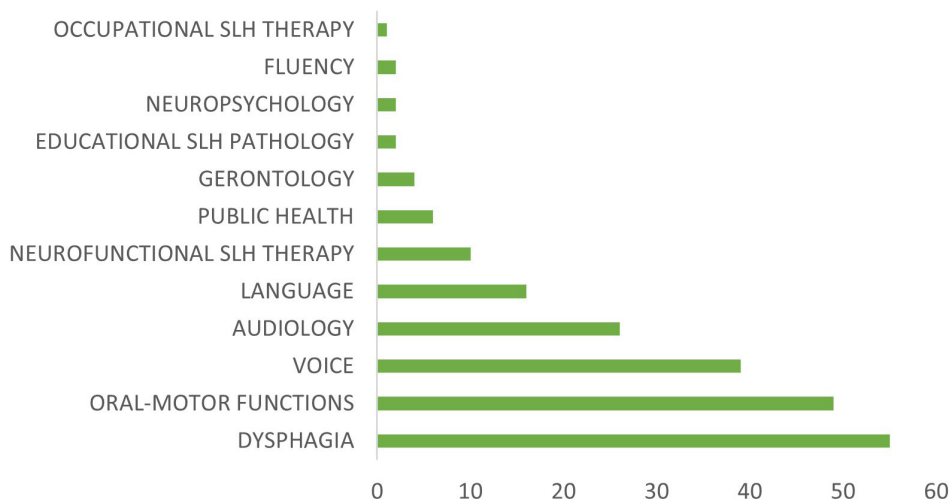
Figure 1. Distribution of the participating speech-language-hearing therapists according to their highest education level

Of the participating professionals, 29.5% are professors, teaching in undergraduate (7.3%) or postgraduate programs (10.3%), or both (11.9%). Also, some of them (6.5%) are professors whose content approached photobiomodulation.

The main specializations pointed out by the participants are shown in Figure 2. As for the main fields of

work (of which the professionals could choose more than one option), the participants listed oral-motor functions (62.1%), dysphagia (54.8%), voice (46.4%), language (45.6%), and audiology (18.8%). The professionals were mainly working at clinics/offices (69.3%), home care (36.4%), and hospitals (28%).

MAIN SPECIALIZATION



Caption: Absolute frequency of Brazilian speech-language-hearing therapists according to their main specialization. n = 261. SLH: speech-language-hearing

Figure 2. Main field of specialization of the participating speech-language-hearing therapists

Most of the SLH therapists stated they knew photobiomodulation (92.3%) and its use in SLH therapy (89.7%). Of the participants, 67.4% had accessed the CFFa recommendations for the use of LLL by SLH therapists. Only 24.9% had researched and published about photobiomodulation, mostly on the fields of oral-motor functions (12.9%), dysphagia (9.6%), and voice (6.5%).

Of the professionals that answered the questionnaire, 56.3% had already studied or been qualified to work with photobiomodulation in SLH therapy or health care. The mean time studying the technique was 2.44 years (SD = 1.94), with a mean course load of 62.01 hours (SD = 170.17) – a minimum of 8 and a maximum of 500 hours. Also, 79.82% of the SLH therapists who had not yet been qualified to use photobiomodulation indicated they were interested in it.

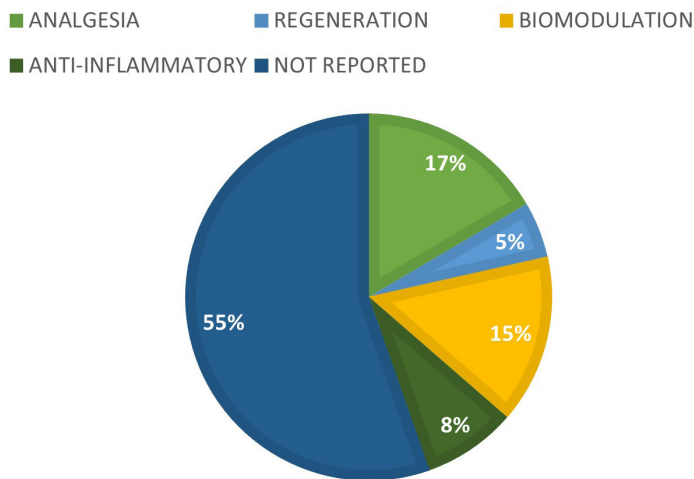
It was identified that 84.7% of the participants had not been introduced to the technique during their undergraduate program, neither had 82.81% at any moment in their postgraduation. However, 67.4% had

already accessed some bibliography related to photobiomodulation in SLH therapy or health care.

Of those researched, 53.6% usually do not use LLL in clinical practice. Those who use it, have done so for 2.41 years (SD = 1.90). The impact of therapeutic LLL use on the patients' adherence was measured on a scale from 0 to 5, resulting in a mean of 4.25 points (SD = 0.96). Concerning the frequency of everyday use of the resource, using the same scale, the mean was 3.77 (SD = 1.07). The three main clinical uses of the resource pointed out by the SLH therapists were in cases of dysphagia (33.05%), facial palsy interventions (22.31%), and saliva control (sialorrhea/hypersalivation) in 14.87% of the answers. Besides these, other highlighted uses include temporomandibular joint disorder (TMD) (14.04%) and muscle performance (9.09%).

Most of the 121 professionals who use laser do so at the beginning of the therapy. Also, most of them (55%) did not answer the main therapeutic effects in LLL intervention. The answers that were given are distributed as shown in Figure 3.

MAIN THERAPEUTIC EFFECTS



Caption: n = 121

Figure 3. Measures of the frequency of the main photobiomodulation therapeutic effects

Of all the participants, 57.9% have access to an LLL device, most of whom have their private one (44.4%). Also, most of them agreed with using LLL as an SLH therapy resource (98.5%). Likewise, most of the therapists are familiar with the biosafety rules for using the device (69%).

Of the professionals who used laser in clinical practice, 94.2% had access to the CFFa recommendations. Moreover, there is a statistically significant association ($p < 0.01$) between using LLL and having access to the recommendations – i.e., more professionals who use laser had access to them (Table 1).

Table 1. Association between laser use in clinical practice and access to the recommendations of the Federal Speech-Language-Hearing Council

Laser use in clinical practice	Did not have access to the recommendations	Had access to the recommendations	% of the total	P-value
Laser not used	78 (55.7%)	62 (44.3%)	140 (53.6%)	p=0.0001*
Laser used	7 (5.8%)	114 (94.2%)	121 (46.4%)	
% of the total	85 (32.6%)	176 (67.4%)	261 (100%)	

Pearson's chi-square test, $p < 0.01^*$

Similarly, almost all (99.2%) professionals who use a laser in clinical practice have studied or been qualified

to work with photobiomodulation in SLH therapy or health care ($p < 0.01$), as presented in Table 2.

Table 2. Association between laser use in clinical practice and studies/qualification in photobiomodulation

Laser use in clinical practice	Did not study/qualify in photobiomodulation	Studied/qualified in photobiomodulation	% of the total	P-value
Laser not used	113 (80.7%)	27 (19.3%)	140 (53.6%)	p=0.0001*
Laser used	1 (0.8%)	120 (99.2%)	121 (46.4%)	
% of the total	114 (43.7%)	147 (56.3%)	261 (100%)	

Pearson chi-square test, $p < 0.01^*$.

A significant association ($p < 0.01$) was verified between the SLH therapist's main specialization and the use of laser in clinical practice. Most of the professionals whose main field of specialization is oral-motor functions, dysphagia, and voice use this resource in

their practice, highlighting oral-motor functions, with 71.4% of such specialists using it. On the other hand, most of the professionals in audiology and language do not use LLL, as shown in Table 3.

Table 3. Association between the main specialization and laser use in clinical practice

Main specialization	Laser not used	Laser used	% of the total	P-value
Audiology	17 (65.4%)	9 (34.6%)	26 (10%)	p=0.0001*
Dysphagia	24 (43.6%)	31 (56.4%)	55 (21.1%)	
Fluency	2 (100%)	0 (0%)	2 (0.8%)	
Occupational SLH Therapy	1 (100%)	0 (0%)	1 (0.4%)	
Educational SLH Pathology	1 (50%)	1 (50%)	2 (0.8%)	
Neurofunctional SLH Therapy	3 (30%)	7 (70%)	10 (3.8%)	
Gerontology	1 (25%)	3 (75%)	4 (1.5%)	
Language	12 (75%)	4 (25%)	16 (6.1%)	
Oral-Motor Functions	14 (28.6%)	35 (71.4%)	49 (18.8%)	
Neuropsychology	2 (100%)	0 (0%)	2 (0.8%)	
Public Health	6 (100%)	0 (0%)	6 (2.3%)	
Voice	17 (43.6%)	22 (56.4%)	39 (14.9%)	
Do not have a specialization	40 (81.6%)	9 (18.4%)	49 (18.7%)	
% of the total	140 (53.6%)	121 (46.4%)	261 (100%)	

Caption: SLH: speech-language-hearing
Pearson chi-square test, $p < 0.01$ *

A significant association ($p < 0.01$) was also observed between time in the profession and the use of laser in clinical practice (Table 4). Moreover, the proportion of use tended to increase as the time

since graduation also progressed, and the predominance of use was verified in the professionals who had graduated 10 to 20 years before (59.1%).

Table 4. Association between time in the profession and laser use in clinical practice

Time in the profession	Laser not used	Laser used	% of the total	P-value
Up to 1 year	16 (84.2%)	3 (15.8%)	19 (7.3%)	p=0.0001*
From 1 to 5 years	51 (76.1%)	16 (23.9%)	67 (25.7%)	
From 5 to 10 years	10 (45.5%)	12 (54.5%)	22 (8.4%)	
From 10 to 20 years	36 (40.9%)	52 (59.1%)	88 (33.7%)	
21 years or more	27 (41.5%)	38 (58.5%)	65 (24.9%)	
% of the total	140 (53.6%)	121 (46.4%)	261 (100%)	

Pearson chi-square test, $p < 0.01$ *

DISCUSSION

This study was conducted to supply a lack of research in the field and point out the current LLL implementation status as an SLH therapeutic resource. Professionals from various Brazilian states participated, with a predominance of Northeastern and Southeastern states – where the studies in the field possibly come from, as they are not centralized in only one region.

The main specializations and fields of work of the participating professionals are dysphagia, oral-motor functions, and voice - which are also the SLH branches that present the most interest in laser and studies on it, exactly the fields whose professionals were most attracted to participate in the research.

Most of the participants were SLH specialists not working as professors, which may be related to the results found. Also, such aspects can mean that a greater number of clinical professionals are being attracted to photobiomodulation, perhaps showing interest in improving their professional practice.

Most of the participating SLH therapists had access to the CFFa recommendations on LLL use in the profession. It was recently approved, in March 2019, providing an official regulation for professionals in the field to use this resource. Such aspect may be associated with the little dissemination in the use of the technique and the still incipient amount of Brazilian research developed in this field. This specific standardization is expected to increase the use of laser, as it potentializes the SLH treatment when associated with other conventional therapies in the field. It is also expected that further research will be conducted to find evidence in SLH clinic¹⁴⁻¹⁶.

Most SLH professionals stated they knew photobiomodulation and the technique to use it in SLH therapy, besides having access to a private laser device. This is a positive finding, showing that, despite being a recent and innovative resource, it is accessible to these professionals and known by them. Nevertheless, most of them do not research or publish on photobiomodulation, resulting in a scarcity of Brazilian studies and publications on this topic. Of those who research, their studies are focused on oral-motor control – a tendency already observed in the national and international publications, which mainly involve themes related to this field. Therefore, as presented in a previous study¹⁴, what is found in the literature regarding LLL applied to SLH therapy is still incipient, calling for broadened scientific research.

Also, the results show that these professionals work mostly in assistance settings: clinics/offices, home care, and hospitals. These aspects may influence the inexpressive amount of research and publications, as a small part of the SLH therapists is in the universities and classrooms – which, along with the research institutes, are traditionally recognized as the main settings for national scientific production because they have activities, space, and resources made available with this purpose.

Most of the professionals have studied or been qualified to work with photobiomodulation in SLH therapy or health care. The CFFa recommendations state that LLL can only be used as a therapeutic resource by SLH therapists who have been adequately and specifically qualified – i.e., those who have a certificate of the course they have taken or a declaration of supervised practice⁶.

A relevant aspect is the photobiomodulation course load. There are currently no regulating parameters in this regard, and a great discrepancy was verified in the study between the minimum and maximum course load. It is worth highlighting that the more hours a professional has in quality theoretical-practical training, the greater their experience and mastery of the technique, making them more qualified to promote good practices in the use of the resource. Interestingly, it was verified that the participants' course load in photobiomodulation is quite close to the time of laser use in clinical practice; these professionals' qualification was likely acquired before using the resource.

Most of the participants of the study did not take classes on photobiomodulation at any moment during their education, which can be explained by the recent use of LLL in SLH therapy. On the other hand, most of them have already had access to some bibliography related to photobiomodulation, which reveals recent dissemination of studies – on the theme, as well as a greater interest on the part of the professionals.

Considering that the use of new therapeutic resources can influence therapy, the professionals' evaluation of the impact of LLL was positive, demonstrating that the resource has a substantial effect on the patients' adherence. Certainly, using this resource promotes a greater adherence because of the early achievable benefits – such as analgesia in painful disorders, which can be already observed when it is used at the beginning of the therapy session, as evidenced in a study involving patients with TMD associating laser with conventional therapy⁵.

Most of the professionals who use laser do so routinely. All the three main clinical uses pointed out by the participants have already been approached in previous studies, with positive responses. LLL proved to be a resource with a good approach to the treatment of dysphagia, especially in the treatment of patients with cancer³. Satisfactory results were also obtained in recovery from facial palsy, improving speech and chewing. It is effective to treat this pathology because of the capacity to change clinical and functional parameters in a short time^{17,18}. Sialorrhea/hypersalivation was one of the LLL uses most indicated by the professionals who answered the questionnaire. Nevertheless, the scientific literature lacks studies proving its effectiveness, as only case studies were identified¹⁹.

Photobiomodulation is a resource that proposes immediate analgesic, anti-inflammatory, and regenerative action. Therefore, its use with LLL deserves an attentive look and greater exploration, given the benefits it may bring, as in the abovementioned cases⁷. In this study, more than half of the professionals who use laser did not mention its therapeutic effects, which indicates their unawareness regarding this essential aspect to be considered in the intervention. The other professionals, in their turn, listed analgesia and biomodulation as main therapeutic effects, corroborating the studies in this field^{5,20}.

In this sense, a piece of research referred to analgesia as one of the main LLL therapeutic effects. The intervention resulted in comfort and eased pain for patients with TMD^{5,20}. One of these papers presented significant results of the effects of biomodulation, helping increase mouth opening range, due to its action upon the cellular and tissue processes⁵. Regeneration is another one of the LLL effects, used to potentialize the intervention and accelerate the nerve recovery process in certain cases²¹.

Most of the professionals use this resource at the beginning of the therapy, which can be related to the therapeutic objectives proposed in the intervention, as the laser can bring immediate benefits and facilitate the rehabilitation process and the use of conventional SLH techniques, achieving more effective results.

A little more than half of the professionals researched do not use photobiomodulation in clinical practice. However, almost all of them agreed with the use of LLL as an SLH therapy resource. This may be a result of the advancements in such discussions, of the gains observed with the use of the technique, and its approval with the CFFa resolution. Establishing a

specific regulation that instructs and ratifies the use of this resource by SLH therapists legitimates its use in professional practice. Moreover, it increases interest, with perspectives of greater professional adherence and dissemination of the technique in SLH therapy.

Another important aspect is that most of the participants know the biosafety rules to use the device. The therapist must be cautious regarding such rules involving them and the patient, wearing appropriate clothing and personal protective equipment, such as goggles to protect the eyes from the radiation, which can affect the retina⁷.

Considering only the professionals who use the laser in clinical practice, most of them had access to the CFFa recommendations, with a statistically significant association. This is an important aspect, as it demonstrates that they are properly informed of the official guidelines and recommendations regarding this part of their work.

Also, almost all the SLH therapists who used laser in clinical practice had studied or been qualified to work with photobiomodulation, which represents an interest in seeking such qualification, promoting good practices and adequate clinical procedures.

A significant association was also verified between the professionals' main specialization and laser use in clinical practice, with opposite tendencies, as professionals in the fields of oral-motor functions, dysphagia, and voice use laser clinically, whereas those in audiology and language do not use it routinely. This aspect may be related to each field's working profile and specificities.

Oral-motor functions is one of the SLH fields that deals with structural and functional aspects related to the stomatognathic system²². Studies related to this field identified satisfactory effects of laser associated with conventional therapy^{4,5,23}. In dysphagia, a specialty focused on difficulties/changes that occur in the swallowing process, international studies on the effect of photobiomodulation verified the effectiveness of laser in the treatment of changes associated with cancer therapy^{3,11,24,25}.

As for the field of voice, the laser has been suggested to treat vocal fatigue, with positive results¹⁵. Despite the few studies relating laser and its effects to voice therapy, it can gain more visibility and adherence in therapeutic practices.

In audiology, the laser has been studied as an intervention resource for patients with tinnitus, providing positive results and reducing the discomfort caused by

it. There is an incipient number of studies in this field; the existing ones are more specifically on patients with hearing loss and tinnitus^{12,13}.

In the field of language, the studies are likewise focused on specific and restricted uses, such as the application of red and infrared photons on the scalp of patients with chronic aphasia. A study demonstrates that the resource can improve comprehension and local blood circulation in such cases²⁶. However, its use is not much evidenced in the literature and the clinical use of transcranial photobiomodulation equipment has not yet been authorized in Brazil. Further research on the theme needs to be carried out to better understand the applicability of the resource and thus broaden its use.

An association was verified between time since graduation and laser use in clinical practice, as professionals who have been working in the field for 10 to 20 years are those who most use the laser. Such an unexpected aspect calls attention to the tendency of greater use of the resource on the part of professionals with greater experience – who commonly prefer traditional techniques, already consecrated by use. This result shows a trend of change in professional preferences and profiles, including good acceptability and use of laser in various sectors of the profession, with different characteristics of those found in a previous study, focused on oral-motor functions¹⁴.

Given the above, it is observed that SLH professionals are interested in increasing the use of this resource in their clinical practice, as they learn the professional norms, seek qualification in the field, and recognize the benefits the technique can offer. The clinical applicability of photobiomodulation can potentialize the gains with SLH intervention, as demonstrated in various studies^{3,5,10-15,24-27}. However, some fields, with few publications, have no studies yet evidencing the effectiveness of using the resource. Currently, after the CFFa resolution was issued, the practice, studies, and research in the field are even more likely, pointing to further advances and improvements.

In this regard, this study is relevant for presenting a survey of professional profiles related to the use of this therapeutic resource. It can contribute to reflections and to the formulation and implementation of strategies to disseminate the nationwide use of the technique. Furthermore, it is important to encourage the qualification of human resources, including photobiomodulation-related content to complement the courses in SLH curricula, because of the benefits the technique

can bring, as already scientifically evidenced and widely discussed in international literature, in various health professions.

CONCLUSION

Most of the Brazilian SLH therapists who participated in the research reported having information on LLL photobiomodulation and its usefulness in SLH therapy. The participants' profile regarding the use of the resource revealed that most of the professionals agree on its therapeutic use and have access to a laser device – although they do not use it yet, neither research nor publish on the theme. Also, the use of the resource in clinical practice was significantly associated with the SLH therapist's main specialization, time in the profession, access to the CFFa recommendations, and studying or obtaining the qualification to work with photobiomodulation.

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APPENDIX: QUESTIONNAIRE USED FOR DATA COLLECTION

Question	Answer options
Age*	Open-ended answer
State where you work*	AC, AL, AP, AM, BA, CE, DF, ES, GO, MA, MT, MS, MG, PA, PB, PR, PE, PI, RJ, RN, RS, RO, RR, SC, SP, SE, TO.
Time working as a speech-language-hearing therapist*	Up to 1 year From 1 to 5 years From 5 to 10 years From 10 to 20 years 21 years or more
Education (highest degree) *	Bachelor's degree Specialization degree Specialization student Master's degree Master's student Doctor's degree Doctoral student
Your main specialization is in (if you have a postgraduate degree): *	I do not have a specialization AUDIOLOGY LANGUAGE ORAL-MOTOR FUNCTIONS PUBLIC HEALTH VOICE DYSPHAGIA EDUCATIONAL SLH PATHOLOGY GERONTOLOGY NEUROFUNCTIONAL SLH THERAPY OCCUPATIONAL SLH THERAPY NEUROPSYCHOLOGY FLUENCY
Field(s) of work *	AUDIOLOGY LANGUAGE ORAL-MOTOR FUNCTIONS PUBLIC HEALTH VOICE DYSPHAGIA EDUCATIONAL SLH PATHOLOGY GERONTOLOGY NEUROFUNCTIONAL SLH THERAPY OCCUPATIONAL SLH THERAPY NEUROPSYCHOLOGY FLUENCY
Work setting(s) *	Clinic Classroom Home Care Hospital School Other:

Do you teach? (Only for professors) *	Undergraduate Postgraduation Both Not applicable
Teaches in Postgraduation (Only for professors) *	Specialization Master's or doctor's program No Both Not applicable
Are you a professor whose content includes laser? *	Yes No Not applicable
Do you know what LASER THERAPY/PHOTOBIMODULATION is? *	Yes No
Do you know the use of laser in speech-language-hearing therapy? *	Yes No
Have you ever researched or published anything in the field of laser therapy? *	Yes No
If so, what was the field of research or publication? *	I did not research/publish AUDIOLOGY LANGUAGE ORAL-MOTOR FUNCTIONS PUBLIC HEALTH VOICE DYSPHAGIA EDUCATIONAL SLH PATHOLOGY GERONTOLOGY NEUROFUNCTIONAL SLH THERAPY OCCUPATIONAL SLH THERAPY NEUROPSYCHOLOGY FLUENCY
Have you had access to the CFFa recommendations on the use of laser by speech-language-hearing therapists? *	Yes No
Have you taken any studies/qualifications on laser therapy/ photobiomodulation in SLH therapy or health care? *	Yes No
Course load taken in Laser therapy: *	Open-ended answer
Was laser therapy included at any moment during your undergraduate studies? *	Yes No
Was laser therapy included at any moment during your postgraduate studies? *	Yes No I have not studied in postgraduation
Do you have/have you had access to any bibliography related to the field of laser therapy in SLH therapy or health care? *	Yes No
Do you have access to a low-level laser device? *	Yes, I have a private device Yes, I rented/borrowed one Yes, there is one at the university/laboratory I do not have access to it Other:
Do you normally use the laser in your clinical practice? *	Yes No

On a scale from 0 to 5, in which 0 means “never” and 5 means “always”, how often do you use the laser in your routine? **	0 1 2 3 4 5
In what cases do you most often use the laser? List three cases at most. **	Open-ended answer
On a scale from 0 to 5, in which 0 means “nothing” and 5 means “much”, to what extent does low-level laser result in greater patient adherence? **	0 1 2 3 4 5
How long have you had your qualification in the field of laser therapy? (in years) **	Open-ended answer
How long have you been using low-level laser in clinical practice? **	Open-ended answer
At what moment of the therapy do you use the laser? **	Beginning Middle End
What photobiomodulation/laser therapeutic effect do you most often use in clinical routine? **	Open-ended answer
Of the clinical situations below, in what indications for laser therapy do/would you intervene? (Only for oral-motor function specialists) *	Facial palsy TMD Both If you are not a specialist in oral-motor functions, this is not applicable Other:
Do you agree that the speech-language-hearing therapist specialized in oral-motor functions must use laser therapy? (Answer only if you are an oral-motor function specialist) *	Yes No Not applicable
Do you know the biosafety rules to use the laser? *	Yes No
Do you agree that a speech-language-hearing therapist can use the low-level laser as a therapeutic resource? *	Yes No
Please, include comments you find appropriate to our survey or make any observation you consider important in the questionnaire: *	Open-ended answer

Caption: * required answer; ** answer applies only to professionals who use the resource in clinical practice; SLH: speech-language-hearing; CFFa: Federal Speech-Language-Hearing Council.