RBSO
Revista Brasileira de Saúde Ocupacional
ISSN: 2317-6369 (online)

Essay
Dossier RBSO 50 Years

Maria Lúcia Vaz Masson[a,b]
https://orcid.org/0000-0003-0733-1753

Léslie Piccolotto Ferreira[c]
http://orcid.org/0000-0002-3230-7248

Maria Maeno[d]
https://orcid.org/0000-0001-6329-629X

[a]Universidade Federal da Bahia, Departamento de Fonoaudiologia, Programa de Pós-Graduação em Saúde, Ambiente e Trabalho. Salvador, BA, Brazil.
[b]Universidade Federal da Bahia, Departamento de Fonoaudiologia, Programa de Pós-Graduação em Ciências da Reabilitação. Salvador, BA, Brazil.
[c]Pontifícia Universidade Católica de São Paulo, Departamento de Teorias e Métodos em Fonoaudiologia e Fisioterapia, Programa de Estudos Pós-Graduados em Comunicação Humana e Saúde. São Paulo, SP, Brazil.
[d]Fundação Jorge Duprat Figueiredo de Segurança e Medicina do Trabalho, Centro Técnico Nacional, Serviço de Apoio Técnico e Pesquisa. São Paulo, SP, Brazil.

Contact:
Maria Lúcia Vaz Masson

E-mail:
masson@ufba.br

How to cite (Vancouver):
Masson MLV, Ferreira LP, Maeno M. Work-Related Voice Disorder: a look at the past, present, and future. Rev bras saúde ocup [Internet]. 2024;49:edcinq9. Available from: https://doi.org/10.1590/2317-6369/39622en2024v49edcinq9

Work-Related Voice Disorder: a look at the past, present, and future

Distúrbio de Voz Relacionado ao Trabalho: um olhar sobre o passado, o presente e o futuro

Abstract

Introduction: Work-Related Voice Disorder (WRVD) is a highly prevalent condition, especially among teachers. In 2018, the Brazilian Ministry of Health (BMH) issued the WRVD Protocol to its identification and reporting as a means to subsidize health surveillance actions. **Objective:** to summarize the history, debate outcomes, challenges, and reflections about WRVD in Brazil. **Methods:** theoretical essay based on a literature review, documents, and records of social actors' involvement in the WRVD recognition process. **Results:** WRVD recognition followed a cumbersome trajectory comprising three phases: Protocol design and initial WRVD recognition; Improvement of exchanges with international communities; WRVD classification as a work-related disease (WRD), decision that was later repealed and then repristinated. **Conclusion:** WRVD recognition process unfolded into a "sociopolitical imbroglio," prompting initiatives by the Legislative Branch and the Brazilian National Health Council, and its recognition by the Bahia and Espirito Santo states. Challenges arose following changes in work, implementation of healthcare paths, and professional training for managing WRVD.

Keywords: voice; voice disorders; occupational health.

Resumo

Introdução: o Distúrbio de Voz Relacionado ao Trabalho (DVRT) é um agravo de elevada prevalência, especialmente em professores. Em 2018, o Ministério da Saúde (MS) publicou o Protocolo DVRT, visando orientar sua identificação e notificação, de modo a subsidiar ações de vigilância sobre seus determinantes. **Objetivo:** sintetizar história, resultados de debates e reflexões acerca do DVRT no Brasil, desafios enfrentados e caminhos futuros para a formalização do seu reconhecimento. **Método:** ensaio teórico, realizado a partir de revisão de literatura, documentos e registros de participação dos atores sociais no processo de reconhecimento do DVRT. **Resultados:** a busca do reconhecimento do DVRT percorreu uma trajetória não linear, destacando-se três fases: elaboração de protocolos e formalização preliminar do DVRT; internacionalização das discussões; e inclusão do DVRT na nova lista de doenças relacionada ao trabalho do MS, seguida de revogação e repristinação. **Conclusão:** o processo de busca de reconhecimento do DVRT se transformou em um "imbróglio político-social", desdobrando-se em iniciativas do Poder Legislativo e do Conselho Nacional de Saúde e no reconhecimento nos estados da Bahia e do Espírito Santo. Desafios surgiram com as mudanças no mundo do trabalho, implementação de linhas de cuidado e capacitação profissional para o manejo do DVRT.

Palavras-chave: voz; distúrbios da voz; saúde do trabalhador.

Introduction

Voice disorder or dysphonia refers to any difficulty that impedes the natural production of vocal sounds[1]. Due to its complexity, the phenomenon of the voice involves biological, psychological, and social aspects that manifest themselves in sounds and meanings in the service of human communication. It is by using the voice that individuals relate to each other, convey their values, and construct the world and reality[2].

The speech therapy diagnosis of a vocal alteration is based on different classifications of dysphonia. The most recently used classification divides dysphonia into two major groups: organic and behavioral dysphonia[3]. Organic dysphonia is related to structural alterations in the larynx or elsewhere that impact vocal function, as well as neurological impairments. Behavioral dysphonia is determined by the ways and methods the individual uses for their vocal expression, as well as personality traits that can trigger or aggravate the dysphonic condition.

The classification adopted in the Work-Related Voice Disorder Protocol (WRVD)[4] establishes three types of dysphonia: functional (primary or secondary, without vocal behavior-induced injury), organofunctional (with injuries resulting from vocal behavior), and organic (independent of vocal behavior)[5].

The WRVD holds a particularity in relation to common dysphonias: it is determined by occupational activity. Its occurrence can reduce, impair, or preclude the worker's performance or communication, even without any organic alteration of the larynx[4]. The exemption of organic evidence of established laryngeal diseases was a significant advance, with the inclusion of the R49 code (voice disorders) of the International Classification of Diseases and Related Health Problems (ICD-10) in the WRVD Protocol. The identification of a voice disorder, even without the presence of lesions resulting from vocal behavior, allows early intervention in the natural history of the disease, before it evolves into organofunctional dysphonia (with laryngeal lesions), which requires more costly, complex, and time-consuming treatment[5].

The WRVD is characterized by risk factors present in the work environment and organization[4], with "vocal overload" being its main determinant. Individual characteristics interact with other aspects and, on their own, do not disqualify the occupational perspective of the condition. For a comprehensive analysis, it is necessary to consider the adverse situations experienced by workers in their daily work lives (**Chart 1**).

Chart 1 Factors determining work-related voice disorders, as established in the WRVD[4] Protocol and characterized in the new list of work-related diseases[6]

Work with 'vocal strain' exacerbated by:	
Psychosocial factors related to job characteristics and organization	**Factors related to the work environment**
Extended work hours	Sound pressure above comfort levels
Overload	Unfavorable acoustics
Accumulation of tasks or responsibilities	Discomfort and thermal shock
Lack of breaks and resting areas during the work shift	Inadequate or insufficient furniture and material
Lack of autonomy	Poor air quality
Fast-paced work rhythm	Inadequate environmental ventilation
Work under high pressure	Low humidity
Job dissatisfaction or dissatisfaction with compensation	Exposure of the respiratory system to irritating chemicals
Inappropriate posture and equipment	
Difficulty accessing hydration and restroom facilities	Presence of dust or smoke in the workplace
Among other unspecified aspects	Among other unspecified aspects

The onset of symptoms is insidious, making immediate recognition more complex. It begins with hoarseness or voice breaks that worsen towards the end of the day and throughout the week, but improve with nighttime rest and on weekends. The maintenance of this pattern gradually leads to worsening and persistence of the dysphonic condition, with no expectation of improvement, even with vocal rest[4].

It primarily affects professionals who use their voice as a working tool, such as teachers[7-10] and call center operators[11], with evident exposure to vocal overload due to the vocal demands of their occupational activities.

However, harm to the phonatory apparatus are not limited to the professional categories mentioned above. There are studies that refer to other workers affected by Work-Related Voice Disorder (WRVD) resulting from laryngitis due to exposure to irritants of the respiratory mucosa, for example[12]. Among them are people who work exposed to: chemicals (in beauty salons/cleaning services); extreme temperature variations (in cold storage facilities); smoke (grill chefs and barbecue cooks); thermal discomfort, and continuous vibration (bus drivers/conductors)[4].

WRVD is a condition of multicausal origin, meaning it is not an exclusive occupational disease, like silicosis, for example, which results from exposure to silica found only in certain job activities. This means that even in the presence of individual factors that predispose to the occurrence of a common voice disorder, the relationship between the condition and work can be established epidemiologically or based on the principle of "concausality,"[4,13] according to which preceding, concurrent, or subsequent causes can coexist.

Schilling[14] classifies work-related diseases into three categories: I) work as a necessary cause; II) work as a contributory factor established by epidemiological evidence; III) work as an aggravating factor of a pre-existing disease or a trigger of latent conditions, with concausality with other exposure factors, regardless of work.

The understanding of WRVD in this classification has advanced in identifying individual clinical conditions prior, concurrent, or resulting from occupational exposure[15]. Group II (contributory factor) would encompass organofunctional dysphonias, based on behavior and evolving into lesions, such as nodules, polyps, and edema. Group III could cover functional secondary dysphonias, with the presence of pre-existing congenital lesions, such as congenital minimal structural alterations (MSA), like cysts and vocal fold sulci. Concomitant organic dysphonias could also be classified in this group, considering individual factors such as allergies and gastroesophageal reflux, integrated with other exposure factors outside of work, such as smoking and alcohol.

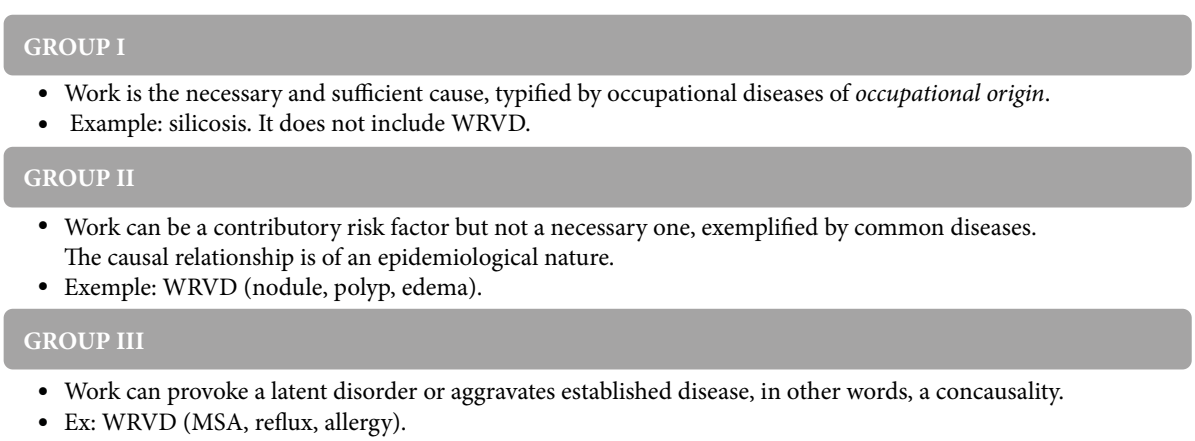

Figure 2 Schilling Classification[14]

Source: Adapted to WRVD by the authors.

This article aims to synthesize the history and information resulting from discussions and reflections on Work-Related Voice Disorders (WRVD), as well as the challenges faced and future paths toward the formal recognition of WRVD.

The investigative journey

This is a theoretical essay of a reflective and interpretative nature, resulting from the authors' experience in seeking recognition for voice disorders as work-related diseases. The article discusses the contradictions inherent in this historical process, dialectically delving into the paths taken, the gaps encountered, and the new paths followed. It is based on the literature produced from discussions with the social actors involved, the legal frameworks established, as well as empirical evidence regarding the association between voice disorders and work[15-17].

The study is organized into three major topics (past, present, and future), which examine epistemological aspects of the conceptions of work and voice disorders, the path taken towards recognition, culminating in the publication of the WRVD Protocol, and the inclusion, revocation, and reinstatement of the former List of Work-Related Diseases (LWRD). It also discusses the technical-scientific production and the challenges of consolidating voice disorders as work-related diseases.

The past: the quest for recognition of WRVD

Paths traveled

The debate on voice disorders as work-related diseases followed a non-linear path marked by advances and setbacks[17]. It can be divided into three key moments[18]: 1) the development of protocols and the formal recognition of voice disorders as work-related disease; 2) the internationalization of the debate, particularly with Latin American countries; and 3) the brief inclusion of WRVD in the new LWRD[6], followed by its repealed[19] and restored of the old list[20-22]. The origins of this debate can be traced back to the VII Voice Seminar of the Pontifical Catholic University of São Paulo (PUC-SP)[16], which was prompted by questions regarding the high demand from teachers with vocal alterations seeking care at a public hospital in the state of Pernambuco. The issue was whether this constituted "occupational dysphonia."

The matter about a possible collective illness among teachers[17] mobilized professional councils, academia, the Reference Center in Worker's Health, São Paulo (Cerest-SP), and professional associations and received important support from unions[16]. In the following years, these collaborations waned due to more urgent demands, such as labor precariousness and institutional weakening, in a social context of dismantling labor rights[23].

Historical construction of Speech Therapy within Collective Health: epistemological foundations

The initial approach of Speech Therapy to the field of Collective Health occurred through the Preventive Speech Therapy model[24], proposed by the University of São Paulo (USP) and based on Leavell and Clark's Social and Preventive Medicine[25]. This model adopted a preventive and community perspective[26-27], based on the World Health Organization's (WHO) concept of health as complete biopsychosocial well-being.

Despite advances in rehabilitation and curative technical practices, grounded in illness, and the characteristics of speech therapy practice in the 1950s/1960s, the Preventive Speech Therapy model considered social factors as just one of the multiple causal factors of illness, neglecting the specific, subjective, social, historical, concrete, and cultural processes of each context/community[26-27]. Consequently, the inclusion of speech therapists in the Brazil's Unified Health System (Sistema Único de Saúde [SUS]) in the early 1990s, especially in Primary Care, was limited to the transposition of clinical practice, traditionally found in private offices, extended in terms of access, and aimed at schoolchildren and workers[26]. The insufficiency of this model highlighted the urgent need to reorient speech therapy practices and academic training through strategies such as the National Program for Reorientation of Professional Training in Health (Programa Nacional de Reorientação da Formação Profissional em Saúde [Pró-Saúde]) and the Education through Work for Health Program (Programa de Educação pelo Trabalho para a Saúde [PET-Saúde]). These efforts aimed to align with the principles and guidelines of the SUS[28-29].

Based on the concept of the social determination of the health–disease process, resulting from the concrete historical and social conditions of communities and manifested in productive work relationships[30], the National Policy on Worker's Health (Política Nacional de Saúde do Trabalhador e da Trabalhadora [PNSTT]) was developed[31]. Similarly, speech therapy expanded its role towards comprehensive health care, with a view to promoting healthy work environments. Aligned with this perspective, subsequent discussions at the PUC-SP Voice Seminars focused on gathering evidence to understand voice disorders as a collective illness[17]. The epidemiological-based questionnaire "Vocal Production Conditions," aimed at teachers[32], was a milestone in this approach, as it considered aspects of the work environment and organization. This marked the approach of speech therapy, especially in the field of voice, to Worker's Health.

Phases of WRVD recognition

The next step was to create a protocol for voice disorders to be formalized as work-related disorder in the relevant public institutions, marking the first phase of the quest for recognition[18]. This was an ongoing process that began with the proposal of an initial document in 2004[33], which was refined and finally published by the Brazilian Ministry of Health in 2018[4].

Following the first public consultation in 2012, which did not yield positive outcomes for WRVD recognition, there was a period of latency. Discussions resumed in 2016 with a project by the group "Teacher Work and Health" (Trabalho e Saúde Docente [Trassado]) from the Federal University of Bahia (Universidade Federal da Bahia [UFBA]), in partnership with PUC-SP, the State University of Feira de Santana (Universidade Estadual de Feira de Santana [UEFS]), the University College London (UCL), and the Estácio of Bahia University (Centro Universitário Estácio da Bahia [Estácio-FIB]). In 2017, the Brazilian General Coordination of Worker's Health at the Ministry of Health (Coordenação-Geral de Saúde do Trabalhador do Ministério da Saúde [CGSAT/DSASTE/SVS/MS]) invited experts to review and update the document, leading to the final version of the WRVD Protocol[4] published the following year. In 2019, the Brazilian Society of Speech-Language Pathology and Audiology (Sociedade Brasileira de Fonoaudiologia [SBFa]) established the "Worker's Health: WRVD/Pair" working group, proposed during the "WRVD/Pair Forum" at the X International Congress of Speech-Language Pathology of SBFa, marking the end of the first phase of the WRVD recognition process[18]. Throughout this process, the direction of initiatives encompassed three main focuses:[17]

1º) **Social Security:** Aimed at workers affected by WRVD who needed social security support to compensate for their occupational losses.

2º) **Compulsory Disease Reporting:** With the need to register the occurrence of WRVD to facilitate care organization, especially in Occupational Health Surveillance.

3º) **List of Work-Related Diseases:** The "mother list" with clinical-epidemiological objectives to identify conditions, in this case WRVD, in its relationship with work.

It can be observed that, while WRVD was initially defined as "occupational dysphonia," the problematization provided by the PUC-SP Voice Seminars allowed for its conceptual revision, aiming to bring it closer to the field of Occupational Health, and it was then named "Work-Related Voice Disorder"[12] following the nomenclatures that have been adopted by regulatory bodies within the scope of the SUS. This also provided a more comprehensive perspective of the individual, who is influenced by social factors.

Occupational Health advances by broadening medical involvement within an interdisciplinary organizational proposal in multi-professional teams characterized by intervention in the work environment with an emphasis on "industrial hygiene"[34]. However, similar to Preventive Speech Therapy, it operates from a mechanistic, Cartesian, multi-causal, a-historical concept of health–disease, also based on the model of the natural history of disease[25], considering the "body as a machine," resulting from the interaction of the host with agents/factors in the work environment, in a relationship external to workers[35].

On the other hand, the perspective of Worker's Health

> *breaks with the dominant conception that establishes a causal link between illness and a specific agent or a group of risk factors present in the work environment and attempts to transcend the focus that places its determination in the social, reduced to the production process, disregarding subjectivity*[34] (p. 11).

The present: from technical-scientific advancements to the inclusion of WRVD in the list of work-related diseases

A brief analysis of the past, aimed at understanding what was learned in that period and pointing out achievements for the present, can highlight the following aspects. The first refers to the change in the healthcare professional's perception of a voice disorder. Initially, it was common for healthcare professionals, particularly speech-language pathologists, to limit their view to blaming the voice professional for the presence of a voice disorder. Expressions such as "Wow, he shouts a lot!" or "He talks non-stop!" were common, without considering or understanding that the conditions present in the environment or the organization of the professional's work determined these behaviors. Terms such as "vocal abuse/misuse" were frequently documented in patient records without any reflection on their meaning[17].

Knowledge production: scientific perspectives

Scientific production, especially that which considers teachers as research subjects, has evidenced the shift in this perspective[36]. While early epidemiological studies centered on the individual[37-38], over time, environmental and work organization factors began to be analyzed and related to the most prevalent issues in teachers[39], such as voice disorders[40-43]. It can be said that it was mainly these studies that supported the discussions that culminated in the publication of the WRVD Protocol[4].

Intervention studies began to be published with proposals not only to highlight prescriptive voice care practices but also to provide access to vocal protection techniques. Strategies such as vocal warm-up/cool-down[44-46], voice amplification[47], direct hydration[47-49], and phonation through a straw[50], although individually oriented, contributed to protecting workers from excessive vocal strain. They also allowed for a better self-perception of voice production conditions and the actual work situation, since they were carried out in schools and with groups of teachers, indicating the need for collective interventions.

Qualitative research, including focus groups and therapeutic groups, helped voice professionals observe their working conditions and collectively seek to modify them[51-52]. Proposals for actions aimed at teachers are always more numerous, either because they do not receive training on the importance of communication in teaching, or because of the easier access to these professionals for research.

More recent initiatives have explored remote methods of accessing teachers, with hybrid[53] or entirely asynchronous[54] teaching approaches. These experiences are structured and expand access to healthcare, but they should not be confused with emergency remote teaching (ERT) imposed during the COVID-19 pandemic, a period when teachers' health conditions deteriorated.

The intrusion of professional work into the home environment under unregulated conditions further exacerbated occupational risks in teachers, including repetitive strain injuries (RSI), work-related musculoskeletal disorders (WRMSD), and work-related mental disorders (WRMD)[55], as well as voice disorders[56]. Musculoskeletal pain was identified in 94.7% of teachers, with the neck, lower back, and right shoulder being the most affected regions[57]. Female teachers were particularly impacted due to the overlap of domestic work, with anxiety attacks (53.7%), mood swings (78.0%), common mental disorders (69.0%), and poor sleep quality (84.6%) being prominent[58].

Regarding voice, despite some improvement compared to the pre-pandemic period, teachers reported a worsening of symptoms, including dry throat, exertion during remote classes, and hoarseness after classes[56].

Formalization of WRVD: the "political-social imbroglio"

The steps taken so far to formally recognize WRVD[17] have occurred in parallel with the urgency to revise the LWRD. Although the WRVD Protocol[4] established the management of vocal issues in workers, it was not sufficient to establish a causal nexus.

In August 2019, during the II Latin American Seminar on Voice and Work, organized by the "Work-Related Voice Disorder" working groups from the University of Campinas (Universidade Estadual de Campinas [Unicamp]) and PUC-SP, tasks were defined to advance the dissemination of WRVD. One of these tasks was to organize a movement to guide speech-language pathologists in participating in the new public consultation regarding the list. The inclusion of Latin American countries in the discussion consolidated the second phase of internationalization, expanding the exchange of international experiences on WRVD[18].

With the publication of Ordinance GM/MS No. 2.309/2020 on August 28, 2020[6], it was revealed that WRVD had been considered. It identified "work with vocal overload" as the main risk factor, and "psychosocial factors related to the nature and organization of work" and "factors related to the work environment" as aggravating aspects. The conditions established were acute laryngotracheitis (J04.2), chronic laryngotracheitis (J37.1), diseases of the vocal cords and larynx not classified elsewhere (J38), vocal cord nodules (J38.2), and voice disorders (R49).

However, the celebrations over the new LWRD were short-lived. In less than 24 hours, the new list was repealed by the Ministry of Health through Ordinance GM/MS No. 2.345/2020[19], and the old LWRD from 1999 was reinstated, creating a "political-social imbroglio"[22,59] and marking the third phase of the process of WRVD recognition[18]. Various entities and movements, including the Broad Front in Defense of Workers' Health (Frente Ampla em Defesa da Saúde dos Trabalhadores [Frenteamplast]), the Brazilian Association of Public Health (Associação Brasileira de Saúde Coletiva [Abrasco]), the Brazilian National Health Council[60] (Conselho Nacional de Saúde [CNS]), and the Chamber of Deputies[61] and Senate[62], called for the retention of the new list. Faced with the repealed of the ordinance, the state government of Bahia adopted the new LWRD at the state level, recognizing the importance of an updated list as an "important tool for clinical and epidemiological use to provide comprehensive care for the health of workers"[63] (p. 2) and the need to update instruments, technologies, and technical parameters to guide health surveillance and comprehensive care actions for the population, in order to keep up with the production and evolution of technical-scientific knowledge and changes in the world of work[63] (p. 2). A similar initiative was recently adopted by the state of Espírito Santo[64,65], which should serve as an example for the other states in Brazil. This would accelerate the compulsory reporting of WRVD and help establish a comprehensive care network with actions to promote health, prevent and treat WRVD, with a focus on workplace surveillance. It is essential to continue the movement to publish the revised LWRD[6]. In addition to supporting the reporting of WRVD, it would enable the implementation of a WRVD care pathway, catering for both voice professionals and other workers previously not included (such as janitors, grill cooks, hairdressers, bus drivers, and ticket collectors) who do not have vocal strain as the main occupational risk factor.

In 2022, LaborVox organized the Seminar "Work-Related Voice Disorder: Achievements and Challenges in Latin America" to celebrate World Voice Day and continue partnerships with other countries. Representatives from Brazil were able to learn about the realities in Argentina, Chile, Colombia, Peru, and Venezuela. Common aspects were identified, highlighting the need for greater exchange of experiences among Latin American countries, with a view to encouraging the creation of a permanent forum for discussion and planning of multicentric research and the possibility of further integration with other countries. During the event, an e-book[66] with the presentations was launched to deepen the understanding of the participating countries' realities and increase healthcare professionals' knowledge, particularly speech-language pathologists, on the issues and actions related to Occupational Health.

The future: consolidation of actions in the WRVD protocol

The future of WRVD care can be planned by considering four aspects: (1) dissemination of WRVD among healthcare and voice professionals; (2) implementation of the care network/pathway; (3) compulsory reporting of WRVD; and (4) training for healthcare professionals in WRVD management.

To understand the first aspect, it is necessary to recall that in the early years when discussions on WRVD began, voice professionals were constantly involved, with the presence of various union representatives at seminars organized by PUC-SP[16,17]. However, over time, with changes in the representation of unions in our society, this participation decreased, becoming almost non-existent by the time the WRVD Protocol was published. Therefore, it is necessary to plan and carry out a mobilization to inform those who will be the primary beneficiaries of this Protocol. The dissemination work should be even more intensive to inform and engage teachers, who often, due to their workload or the fact that they consider their profession to be a calling[67], seem to neglect their health conditions, especially with regard to their voice.

On the other hand, most healthcare professionals are also unaware of the WRVD Protocol. Even speech therapists, one of the main actors in this process, know little about its content and the possibilities for managing the condition, often believing that this protocol was created to serve only public service professionals within the SUS network (Health Surveillance, Primary Care, Medium and High Complexity), without realizing that it also encompasses private services, corporate health services, and Specialized Safety and Occupational Medicine Services (Serviços Especializados de Segurança e Medicina do Trabalho [Sesmt]).

The other aspect—the implementation of the WRVD care network/pathway—involves putting into operation the WRVD management outlined in the Ministry of Health's Protocol[4], with the organization of teams and services to ensure the comprehensive care of workers, as established in defined therapeutic flows and itineraries. This includes surveillance of work environments and processes, diagnosis, treatment, rehabilitation, and return to work.

For the compulsory reporting of WRVD, it is necessary to resume the movement towards registration of work-related voice disorder cases, as well as their recognition as occupational diseases, according to the updated new LWRD[6]. Until that happens, one possibility would be to encourage the approval of ordinances at state level. Considering the outdated language of the compulsory reporting forms currently available, as well as the lack of interoperability with other systems or the need for integration with local systems, the Ministry of Health's Health Surveillance Department has developed a project, to be implemented, called the e-SUS Lifeline Project. This project will focus on individual issues, rather than prioritizing the condition. It will provide standardized terminology, and the issuance of declarations electronically to facilitate integration with systems. This proposal was presented at the seminar "Work-Related Voice Disorder: Achievements and Challenges in Latin America" and is available for access at the following link: https://www.pucsp.br/laborvox/download/conquistas-e-desafios/e-sus-linha-da-vida.pdf.

The last aspect—training healthcare professionals in WRVD management—presents the challenge of training professionals from the National Comprehensive Workers' Health Care Network (Rede Nacional de Atenção Integral à Saúde do Trabalhador [RENAST]), which includes all SUS services, especially those in Primary Care, specialized networks, and Cerest. Similarly, professionals from private services, corporate health services, and Sesmt should be trained to provide better working conditions and reduce the occurrence of voice disorders.

Given the complexity of this task, particularly for training speech therapists, who have more specialized training in specific areas and may find it difficult to understand the field of Public Health, especially Workers' Health, it is advisable to partner with the Brazilian Federal Council of Speech Therapy and Audiology (Conselho Federal de Fonoaudiologia [CFFa]) and the SBFa. The intention is to use the e-book[66] to support this training. In addition to information on what a LWRD is, a protocol of differentiated complexity, and presenting the most common protocols in the daily lives of healthcare professionals, especially speech therapists, the e-book provides a detailed description of

each of the WRVD recommendations: care pathway, diagnosis, care and return to work, workplace surveillance, and notification, with a focus on the experiences of Cerest[68].

Two other themes present in the e-book should be discussed and problematized in the training of healthcare professionals. The first is to understand disability and functional impairment resulting from WRVD from the perspective of the International Classification of Functioning, Disability, and Health (ICF), which prioritizes the individual's daily life rather than just the disease itself[69-71]. The second is the possibility of incorporating tele-audiology, a practice that brought healthcare professionals and patients closer together due to the COVID-19 pandemic[72], without losing sight of comprehensive healthcare, as established by the SUS.

We know that the task of consolidating the WRVD is not simple. After more than 25 years of struggle, marked by advances and setbacks, the challenges continue. Therefore, we call upon speech therapists, unions, especially teachers and call center operators, to work together to seek better working conditions and the implementation of the WRVD care pathway, aiming to incorporate vocal health into the comprehensive healthcare of workers in Brazil.

Final considerations

The search for recognition of the work-related voice disorder (WRVD) was a non-linear process, marked by advances and setbacks, from the initial questioning of whether voice disorders in teachers could be a collective illness to the inclusion of WRVD in the new list of work-related diseases by the Ministry of Health, its repealed, and subsequent restored of the old list, as defined by Dias et al.[22], forming a "political-social imbroglio." This process contributed to broadening the perspective of researchers and speech therapists involved in the theme beyond the concept of voice disorders, which was previously limited to factors inherent to the individual, without considering the workplace and organization of work as determinants of the health–disease process. This new concept provided an opportunity to rethink healthcare, previously limited to clinical-therapeutic rehabilitation actions, as defined by Leavell and Clark[25]. This quest followed paths that initially attempted to recognize the right to compensatory benefits from Social Security, later by the mechanism of compulsory reporting of health diseases and, more recently, with the inclusion of voice disorders in the new list of work-related diseases. The publication of the WRVD Protocol by the Brazilian Ministry of Health was a significant institutional milestone in this process, highlighting the integration needed to establish the WRVD care pathway, linking different technologies, levels, and types of actions aimed at comprehensive health care, including promotion, protection, rehabilitation, as well as professional readaptation and return to work, with a focus on workplace surveillance. It is understood that the publication of the WRVD Protocol does not guarantee its implementation in daily professional practice, with effective reporting and the establishment of care networks/pathways. Although local initiatives are in place, nationwide recognition is essential to reflect the reality of a collective illness that is not specific to a particular municipality or state, but to society as a whole. Therefore, we believe that the next steps should involve including WRVD in the National List of Work-Related Diseases (LWRD). Furthermore, training healthcare professionals in WRVD management is crucial to consolidating this process.

In due course, as a result of the dynamism of social struggles, between the approved version of this article and its publication, there have been four achievements phased by the recognition of voice disorders as an occupational disease: 1) Ordinance No. 274/2023 from the Health Department of the State of Bahia (SESAB), which had already recognized the new list of occupational diseases revoked by the Ministry of Health as the list of occupational diseases, now ratifies the same list for the compulsory notification of injuries and public health events in the state of Bahia; 2) Resolution No. 97/2023 from the Health Department of the State of São Paulo, which establishes LDRT-SP as a reference for diseases and injuries arising from the work process in the state of São Paulo; 3) Federal Law No. 14,681/2023, published on September 19, 2023, which establishes the Policy of Well-Being, Health, and Quality of Life at Work and Valorization of Education Professionals, throughout the national territory, the result of an intersectoral collaboration involving the Ministries of Education, Health, Justice and Public Security, Labor and Employment; 4) finally, GM/MS Ordinance No. 1,999, dated November 27, 2023, the long-awaited new list of occupational diseases.

References

1. Behlau M, Pontes P. Avaliação e tratamento das disfonias. São Paulo: Lovise; 1995.
2. Masson MLV. Sobre voz: compreensão de significados, vertentes e possibilidades de atuação fonoaudiológica. R Ci Med Biol. 2007;6(1):1-4.
3. Zambon F, Teixeira, LC, Almeida AA. Disfonias comportamentais. In: Lopes L, Moreti F, Ribeiro LL, Pereira EC, organizers. Fundamentos e atualidades em voz clínica. Rio de Janeiro: Thieme Revinter Publicações; 2019. p. 81-94.
4. Brasil. Ministério da Saúde. Distúrbio de voz relacionado ao trabalho – DVRT. Brasília (DF): Ministério da Saúde; 2018.
5. Behlau M, Pontes P, organizers. Voz: o livro do especialista. Rio de Janeiro: Revinter; 2001.
6. Brasil. Ministério da Saúde. Portaria nº 2.309, de 28 de agosto de 2020. Altera a Portaria de Consolidação GM/MS no 5, de 28 de setembro de 2017, e atualiza a Lista de Doenças Relacionadas ao Trabalho (LDRT). Brasília (DF): Ministério da Saúde; 2020.
7. Martins RHG, Pereira ERBN, Hidalgo CB, Tavares ELM. Voice disorders in teachers: a review. J Voice. 2014;28(6):716-24.
8. Cutiva LCC, Vogel I, Burdorf A. Voice disorders in teachers and their associations with work-related factors: a systematic review. J Commun Disord. 2013;46(2):143-55.
9. Jesus MTA, Ferrite S, Araújo TM, Masson MLV. Distúrbio de voz relacionado ao trabalho: revisão integrativa. Rev Bras Saude Ocup. 2020;45:e26.
10. Oliveira P, Ribeiro VV, Constantini AC, Cavalcante MEOB, Sousa MS, Silva K. Prevalence of work-related voice disorders in voice professionals: systematic review and meta-analysis. J Voice. 2022:S0892-1997.
11. Lins MNB, Pereira LMA, Masson MLV. Danos morais por distúrbio de voz relacionado ao trabalho: levantamento de julgados do Tribunal Superior do Trabalho. Rev Bras Saude Ocup. 2020;45:e29.
12. Costa HO, Pontes PAL, Almeida SIC. Distúrbio de voz relacionado ao trabalho. In: Mendes R, organizer. In: Patologia do trabalho. Rio de Janeiro: Atheneu; 2013. p. 1167-76.
13. Monteiro AL. Disfonias e Infortunística. In: I Fórum de saúde do trabalhador de Araraquara – distúrbios de voz relacionados ao trabalho. Araraquara: PUC-SP; 2004.
14. Schilling RSF. More effective prevention in occupational health practice. J Soc Occup Med. 1984; 34(3):71-9.
15. Przysiezny PE, Przysiezny LTS. Work-related voice disorder. Braz Otorhinolaryngol. 2015;81(2):202-11.
16. Ferreira LP, Bernardi APA. Distúrbio de voz relacionado ao trabalho: resgate histórico. Disturb Comun. 2011;23(2):233-6.
17. Masson MLV, Ferrite S, Pereira LMA, Ferreira LP, Araújo TM. Seeking the recognition of voice disorder as work-related disease: historical-political movement. Cienc Saude Colet. 2019;24(3):805-16.
18. Masson MLV, Gonçalves FRM. O distúrbio de voz relacionado ao trabalho no Brasil. In: Ferreira LPASM, editor. Distúrbio de voz relacionado ao trabalho: conquistas e desafios na América Latina. São Paulo: Sintropia Traduções; 2022. p. 284-90.
19. Brasil. Ministério da Saúde. Portaria MS/GM nº 2.345, de 2 de setembro de 2020. Torna sem efeito a Portaria no 2.309/GM/MS, de 28 de agosto de 2020. Brasília (DF): Ministério da Saúde; 2020.
20. Brasil. Ministério da Saúde. Portaria MS/GM nº 2.384, de 9 de setembro de 2020. Repristina os arts. 423 e 424 da Seção IV do Capítulo III do Título III e o Anexo LXXX da Portaria de Consolidação no 5/GM/MS, de 28 de setembro de 2017. Brasília (DF): Ministério da Saúde; 2020.
21. Masson MLV, Ferreira LP, Giannini SPP, Souza MT, Maeno M, Gândara MER, et al. Distúrbio de voz: reconhecimento revogado junto com a nova lista de doenças relacionadas ao trabalho. Rev Bras Saude Ocup. 2020;45:e32.
22. Dias EC, Silva-Junior JS, Baeta KF, Bandini M. Lista de doenças relacionadas ao trabalho: obrigação legal de base técnica se transforma em imbróglio político-social: reflexões sobre possíveis saídas. Saude Debate. 2021;45(129):435-40.
23. Brasil. Presidência da República. Lei nº 13.467, de 13 de julho de 2017. Altera a Consolidação das Leis do Trabalho (CLT), aprovada pelo Decreto-Lei nº 5.452, de 1º de maio de 1943, e as Leis nº 6.019, de 3 de janeiro de 1974, 8.036, de 11 de maio de 1990, e 8.212, de 24 de julho de 1991, a fim de adequar a legislação às novas relações de trabalho. Brasília (DF): Presidência da República; 2017.
24. Andrade CRF. Fonoaudiologia preventiva: teoria e vocabulário técnico-científico. São Paulo: Lovise; 1996.
25. Leavell H, Clark EG. Medicina social e preventiva. São Paulo: McGraw-Hill; 1976.
26. Masson MLV. É melhor prevenir ou remediar? Um estudo sobre a construção do conceito de prevenção em Fonoaudiologia [Dissertation]. São Paulo: Pontifícia Universidade Católica de São Paulo; 1995.
27. Penteado RZ, Servilha EAM. Fonoaudiologia em saúde pública/coletiva: compreendendo prevenção e o paradigma da promoção da saúde. Disturb Comun. 2004;16(1):107-16.

28. Telles MWP, Arce VAR. Formação e PET-Saúde: experiências de estudantes de fonoaudiologia na Bahia. Rev Cefac. 2015;17(3):695-706.

29. Trenche MCB, Padovani M, Anhoque CF, Garcia VL, organizers. Políticas Indutoras: formação profissional em Fonoaudiologia. São José dos Campos: Pulso Editorial; 2020.

30. Laurell AC. La salud-enfermedad como proceso social. Revista Latinoamericana de Salud. 1982(19):1-11.

31. Brasil. Ministério da Saúde. Portaria nº 1.823, de 23 de agosto de 2012. Institui a Política Nacional de Saúde do Trabalhador e da Trabalhadora. Brasília (DF): Ministério da Saúde; 2017.

32. Ferreira LP, Giannini SPP, Latorre MRDO, Simões-Zenari M. Distúrbio de voz relacionado ao trabalho: proposta de um instrumento para avaliação de professores. Disturb Comun. 2007;19(1):127-36.

33. Pontifícia Universidade Católica de São Paulo. O documento – distúrbio de voz relacionado ao trabalho. In: Pontifícia Universidade Católica de São Paulo. XIV Seminário de Voz da PUC-SP [Internet]. São Paulo: PUC-SP; 2004.

34. Mendes R, Dias EC. Da medicina do trabalho à saúde do trabalhador. Rev Saude Publica. 1991;25(5):341-9.

35. Lacaz FAC. O campo Saúde do Trabalhador: resgatando conhecimentos e práticas sobre as relações trabalho-saúde. Cad Saude Publica. 2007;23(4):757-66.

36. Ferreira LP, Giannini SPP. Voz do professor: perspectiva histórica sob o olhar do Fonoaudiólogo. In: Siqueira MCC, Ferreira LP, Brasolotto AG, Santos RS, organizers. Fonoaudiólogo: o que fazer com a voz do professor? Curitiba: Universidade Tuiuti do Paraná; 2021. p. 24-30.

37. Roy N, Merrill RM, Thibeault S, Gray SD, Smith EM. Voice disorders in teachers and the general population: effects on work performance, attendance, and future career choices. J Speech Lang Hear Res. 2004;47(3):542-51.

38. Behlau M, Zambon F, Guerrieri AC, Roy N. Epidemiology of voice disorders in teachers and nonteachers in Brazil: prevalence and adverse effects. J Voice. 2012;26(5):665.e9-18.

39. Araújo TM, Carvalho FM. Condições de trabalho docente e saúde na Bahia: estudos epidemiológicos. Educ Soc. 2009;30(107):427-49.

40. Araújo TM, Reis EJFB, Carvalho FM, Porto LA, Reis IC, Andrade JM. Fatores associados a alterações vocais em professoras. Cad Saude Publica. 2008;24(6):1229-38.

41. Assunção AA, Oliveira DA. Work intensification and teachers' health. Educ Soc. 2009;30(107):349-72.

42. Servilha EAM, Correia JM. Correlações entre condições do ambiente, organização do trabalho, sintomas vocais autorreferidos por professores universitários e avaliação fonoaudiológica. Disturb Comun. 2014;26(3):452-62.

43. Giannini SPP, Latorre MRDO, Fischer FM, Ghirardi ACAM, Ferreira LP. Teachers' voice disorders and loss of work ability: a case-control study. J Voice. 2015;29(2):209-17.

44. Masson, MLV, Loiola CM, Fabron EMG, Horiguela MLM. Aquecimento e desaquecimento vocal em estudantes de Pedagogia. Disturb Comun. 2013;25(2):177-85.

45. Pereira LPP, Masson MLV, Carvalho FM. Vocal warm-up and breathing training for teachers: randomized clinical trial. Rev Saude Publica. 2015;49:67.

46. Masson MLV, Fabbron EMG, Loiola-Barreiro CM. Aquecimento e desaquecimento vocal em professores: estudo quase-experimental controlado. CoDAS. 2019;31(4):e20180143.

47. Masson MLV, Araújo TM. Protective strategies against dysphonia in teachers: preliminary results comparing voice amplification and 0.9% NaCl nebulization. J Voice. 2018;32(2):257.

48. Santana ER, Masson MLV, Araújo TM. The effect of surface hydration on teachers' voice quality: an intervention study. J Voice. 2017;31(3):383.

49. Santana ER, Araújo TM, Masson MLV. Self-perception of surface hydration effect on teachers' voice quality: an intervention study. Rev Cefac. 2018;20(6):761-9.

50. Souza RC, Masson MLV, Araújo TM. Efeitos do exercício do trato vocal semiocluído em canudo comercial na voz do professor. Rev Cefac. 2017;19(3):360-70.

51. Góes RL. Percepções de professores sobre voz no trabalho [Dissertation]. Salvador: Universidade Federal da Bahia; 2017.

52. Giannini SPP, Karmann DF, Isaias FM, Brauko CC, Augusto ACB. Programa de voz do Hospital do Servidor Público Municipal de São Paulo: experiência de atendimento em grupos terapêuticos. In: Ferreira LP, Silva MAA, Giannini SPP, organizers. Distúrbio de voz relacionado ao trabalho: práticas fonoaudiológicas. São Paulo: Roca; 2015. p. 143-50.

53. Pompeu ATS, Ferreira LP, Trenche CB, Souza TT, Esteves AO, Giannini SPP. Bem-estar vocal de professores: uma proposta de intervenção realizada a distância. Disturb Comun. 2016;28(2):350-62.

54. Ferraz PRR, Ferreira LP. Voz e ensino a distância (EaD). Disturb Comun. 2021;33(4):762-75.

55. Araújo TM, Lua I. O trabalho mudou-se para casa: trabalho remoto no contexto da pandemia de covid-19. Rev Bras Saude Ocup. 2021;46:e27.

56. Nemr K, Simões-Zenari M, Almeida VC, Martins GA, Saito IT. COVID-19 and the teacher's voice: self-perception and contributions of speech therapy to voice and communication during the pandemic. Clinics. 2021;76:e2641.

57. Guimarães B, Chimenez T, Munhoz D, Minikovski H. Pandemia de covid-19 e as atividades de ensino remotas: riscos ergonômicos e sintomas musculoesqueléticos dos docentes do Instituto Federal Catarinense. Fisioter Pesqui. 2022;29(1):96-102.

58. Pinho PS, Freitas AMC, Cardoso MCB, Silva JS, Reis LF, Muniz CFD, Araújo TM. Trabalho remoto docente e saúde: repercussões das novas exigências em razão da pandemia da covid-19. Trab Educ Saude. 2021;19:e00325157.

59. Silva-Junior JS, Bandini M, Baêta KF, Dias EC. Atualização 2020 da lista de doenças relacionadas ao trabalho no Brasil. Rev Bras Saude Ocup. 2022;47:e11.

60. Brasil. Ministério da Saúde, Conselho Nacional de Saúde. Resolução MS/CNS nº 643, de 2 de setembro de 2020. Aprova a versão atualizada da Lista de Doenças Relacionadas ao Trabalho (LDRT), constante na Portaria MS no 2.309 de 28 de agosto de 2020. Brasília (DF): Ministério da Saúde; 2020.

61. Brasil. Câmara dos Deputados. Projeto de Decreto Legislativo nº 388, de 2 de novembro de 2020. Susta os efeitos da Portaria nº 2.345, de 2 de setembro de 2020 que tornou sem efeito a Portaria nº 2.309/GM/MS, de 28 de agosto de 2020 que atualizou a Lista de Doenças Relacionadas ao Trabalho (LDRT). Brasília (DF): Câmara dos Deputados; 2020.

62. Brasil. Senado Federal. Projeto de Decreto Legislativo n° 396, de 10 de setembro de 2020. Sustam-se, nos termos do art. 49, V, da Constituição Federal, os efeitos da Portaria nº 2.384/GM/MS, de 8 de setembro de 2020, do Ministro de Estado da Saúde Interino, publicada no Diário Oficial da União de 9 de setembro de 2020, repristinando-se integralmente os efeitos da Portaria nº 2.309/GM/MS, de 28 de agosto de 2020, de modo a atualizar a Lista de Doenças Relacionadas ao Trabalho (LDRT). Brasília (DF): Senado Federal; 2020.

63. Bahia. Secretaria Estadual de Saúde. Portaria Estadual Sesab nº 31, de 14 de janeiro de 2021. Lista de Doenças Relacionadas ao Trabalho para o Estado da Bahia – LDRT-BA. Salvador: Secretaria Estadual de Saúde; 2021.

64. Espírito Santo. Secretaria Estadual de Saúde. Portaria Sesa nº 115-R, de 4 de agosto de 2022. Inclui a relação de doenças, agravos e eventos de interesse estadual à Lista Nacional de Doenças de Notificação Compulsória e dá outras providências. Vitória: Secretaria Estadual de Saúde; 2022.

65. Espírito Santo. Secretaria Estadual de Saúde. Portaria nº 120-R, de 18 de junho de 2021. Lista de Doenças Relacionadas ao Trabalho para o Estado do Espírito Santo (LDRT). Vitória: Secretaria Estadual de Saúde; 2021.

66. Ferreira LP, Silva MAA. Distúrbio de voz relacionado ao trabalho: conquistas e desafios na América Latina. São Paulo: Sintropia Traduções; 2022.

67. Cericato IL. A profissão docente em análise no Brasil: uma revisão bibliográfica. Rev Bras Estud Pedagog. 2016;97(246):273-89.

68. Fioravanti CES, Lima ERZ, Parreira VEW. Atuações dos Cerests no distúrbio de voz relacionado ao trabalho – DVRT: relato de experiências. In: Ferreira LP, Silva MAA, organizers. Distúrbio de voz relacionado ao trabalho: conquistas e desafios na América Latina. São Paulo: Sintropia Traduções; 2022. p. 239-55.

69. Ferreira LP, Masson MLV, Giannini SPP, Biz MCP. Distúrbio de voz relacionado com o trabalho (DVRT) e a Classificação Internacional da Funcionalidade, Incapacidade e Saúde (CIF). In: Lopes L, Moretti F, Zambon F, Vaiano T, organizers. Fundamentos e atualidades em voz profissional. Rio de Janeiro: Revinter Thieme; 2021. p. 24-34.

70. Biz MCP, Chun RYS. O distúrbio de voz relacionado ao trabalho (DVRT) e a Classificação Internacional de Funcionalidade, Incapacidade e Saúde (CIF). In: Ferreira LP, Silva MAA, organizers. Distúrbio de voz relacionado ao trabalho: conquistas e desafios na América Latina. São Paulo: Sintropia Traduções; 2022. p. 225-38.

71. Biz MCP, Masson MLV, Souza MT, Ferreira LP. Agravos da comunicação relacionados ao trabalho (ACRT). In: Paiva SF, Pinto FCA, organizers. Classificação Internacional de Funcionalidade: da teoria à prática em Fonoaudiologia. Ribeirão Preto: Book Toy; 2022. p. 149-78.

72. Oliveira ST, Ramos SM, Silverio KCA, Antonetti AES. A telefonoaudiologia e o distúrbio de voz relacionado ao trabalho – DVRT. In: Ferreira LP, Silva MAA, organizadores. Distúrbio de voz relacionado ao trabalho: conquistas e desafios na América Latina. São Paulo: Sintropia Traduções; 2022. p. 256-64.

Acknowledgement: the authors would like to thank Beatriz Pedreira Braga Santos–a scholarship holder at the Federal University of Bahia (UFBA) under the Institutional Programme for Scientific Initiation Scholarships (Pibic) of the National Council for Scientific and Technological Development (CNPq)–for her help in feeding the reference database.

Authorship contributions: Masson MLV, Ferreira LP and Maeno M contributed equally to the work in terms of the authorship criteria defined by the International Committee of Medical Journal Editors (ICMJE): (1) substantial contributions to the conception or design of the study; or acquisition, analysis, and interpretation of the work's data; (2) preparation of preliminary versions of the manuscript or critical review of important intellectual content; (3) final approval of the version to be published; and (4) agreement to be responsible for all aspects of the work, in order to ensure that questions relating to the accuracy or integrity of any part of the work are properly investigated and resolved.

Data availability: the entire dataset supporting the results of this study has been published in the article itself.

Funding: the authors declare that the study was not funded.

Competing interests: the authors declare that there are no conflicts of interest.

Presentation at a scientific event: the authors report that the study has not been presented at a scientific event.

Received: October 25, 2022
Revised: January 23, 2023
Approved: February 23, 2023

Editor-in-chief
Ada Ávila Assunção