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PROFESSIONAL VOICE:

Integrated Practices of Teaching, Research and University Extension

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Aline Menezes Guedes Dias de Araújo
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PREFACE

Maria Fabiana Bonfim de Lima-Silva

This e-book is a collection of experiences from my insertion, in 2011, as a professor in the Department of Speech Therapy at the Federal University of Paraíba (UFPB). Upon joining this institution, I developed an extension project called the Voice Advisory Program for Teachers (ASSEVOX), based on the knowledge I gained during the period in which I took my master's and doctorate, at the Pontifical Catholic University of São Paulo (PUC-SP), under the guidance of the Professor Dr. Leslie Piccolotto Ferreira and Prof. Dr. Zuleica Camargo.

So, in the following year, with the desire that extension students could experience the reality of professors through practical experiences that went beyond the walls of the university, I submitted ASSEVOX to the UFPB 2012 Probex Notice, but unfortunately we did not receive the scholarship. Even so, with a pioneering group of six students, we started our actions through a Fluex project (Project only with volunteer students) in a private school with the objective of promoting vocal health for teachers and the school community. I remember that we went through several challenges, because the room that the school gave us for collection was not a clean, pleasant environment, however, we did not get discouraged and cleaned, painted the walls and renovated the entire room. Shortly after the renovation, we started our vocal health assessments and workshops. I remember to this day that many teachers were surprised by our act of cleaning the room, as no one had ever done anything to improve that room, and they said: "*It was an abandoned room*"; "...it was a real storage room for the school, now there is another room, well *organized and clean*".

It is worth noting that in the first meeting with the director of this school, it was emphasized that we would carry out vocal assessments of the teachers, but that after these procedures, the teachers participating in the project would receive the reports with the diagnosis and then participate in voice experience workshops with content theoretical and practical, within the school. In addition, our team inserted vocal health actions in the school calendar events (student day, teacher's day, family day, among others).

Then, in 2013, we took an important step towards ASSEVOX, we managed to get the project approved with a grant in the Probex 2013 Notice, and we entered into a partnership with the Department of Education and Culture of João Pessoa (SEDEC-JP). Thus, between 2012 and 2019, with the support of the Edital Probex and Fluex (UFPB), more than 60 extension workers participated in our project, from undergraduate, graduate and other courses (Psychology, Physiotherapy, among others). Currently, ASSEVOX has managed to cover 15 schools in the public and private network, including kindergarten, elementary and

high school. In addition, during these seven years, in person, we carried out an average of 420 vocal screenings, 44 voice experience workshops and 21 lectures. In the last lecture, held in 2019, we were invited by SEDEC-JP to talk about the importance of voice in teaching work and handling voice amplifiers, in which my doctoral student Patrícia Penha and I presented relevant data from the research developed by ASSEVOX and strategies correct handling of microphones (voice amplifiers). It is worth noting that more than 500 amplifiers were delivered to the teachers participating in this event.

Such actions carried out during this period, yielded us several products, including participation in local, regional and national events (congresses, seminars, meetings), 10 publications of scientific articles in national and international journals, 14 book chapters, 73 complete, expanded abstracts and annals, 21 course conclusion works, 31 scientific initiation works, 5 dissertations, among others.

However, in the first months of 2020, we were surprised by the onset of the SARS-CoV-2 pandemic, a rapidly spreading respiratory syndrome. Since then, several measures by the World Health Organization (WHO) have been taken to prevent the spread of this virus, including social distancing. This fact brought as the main impact to the ASSEVOX project the impossibility of carrying out the actions (workshops, screening and attendance) in person. As a result of these various changes, the project had to reinvent itself and adapt to the new reality, using digital platforms to continue developing its activities and contributing, more than ever, to society and the academic community. In addition, the project, which was previously aimed only at teachers, expanded its target audience to all voice professionals (teachers, telemarketers, digital influencers, actors, singers, telejournalists and others) and thus came to be called Vocal Advisory Program for Voice Professionals (ASSEVOX).

According to this new appearance, ASSEVOX showed itself to have solid foundations and an excellent potential to adapt to new situations. In this period, we idealized to make our *Instagram* profile a digital magazine, containing information accessible to voice professionals and the entire community. Through meetings, we create content, develop means of interaction and broaden our view of the most diverse forms of health promotion. With this, we continue with our scientific initiation projects, discuss book chapters, participate in open classes and regional events, publish scientific articles and, above all, drive our dreams!

Currently, we had the project “Analysis of the effects of a distance vocal health program for teachers in the state of Paraíba” approved in the Universal Demand Notice n° 09/2021, promoted by the Foundation for Research Support of the State of Paraíba (FAPESQ), which brings unprecedented insofar as there are no other proposals in force in the state with the purpose of assisting and supporting the essential professional for the development of our society, such as the teacher. issues related to the health and quality of life of several educators in the state, especially those who do not have the financial possibilities or conditions to be accompanied by a professional speech therapist.

This *e-book* is part of a beautiful journey full of challenges. A path traveled with dedication, responsibility and union. Therefore, we invite you, the reader, to know a little more about the work performed by the ASSEVOX group over these 10 years.

I wish you a good read and that this work is an inspiration for all those who wish to tread the paths of university extension, teaching and research.

PRESENTATION

This *e-book* entitled **"Professional Voice: Integrated Teaching, Research and University Extension Practices"** is the result of an extension project called "Vocal Advisory Program for Voice Professionals" (ASSEVOX), which has been developed since the year of 2012 with the support of the public notice for the Extension Scholarship Program (PROBEX) of the Federal University of Paraíba (UFPB), whose main objective is to promote vocal health and prevent voice disorders in the most diverse professionals who depend on it to perform their work.

In this work, 14 chapters were gathered that explain from the experience of students and teachers who participated in the voice advisory program, to themes related to the prevention of voice disorders, vocal health promotion and around expressiveness. In them, there are studies about teachers, telemarketers, telejournalists and digital influencers. The purpose of this e-book is to expand the knowledge of undergraduate, graduate and Speech-Language Pathology professionals, as well as all those interested in studying voice professionals. In addition, we hope to encourage and drive the development of research through the vision and experiences of a university extension.

It is important to highlight that this work is composed of results of scientific initiation research and experiences around the ASSEVOX university extension. The chapters were prepared by students (undergraduate and graduate students) and by professional researchers from UFPB and other institutions (UNIPÊe PUC-SP) who, in a responsible and qualified way, proposed to explain their studies with current and relevant themes for the scientific community and society as a whole.

We wish you a great read!

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SUMÁRIO

CAPÍTULO 1

EXPERIENCES OF EXTENSIONISTS PART OF A VOCAL ADVISORY PROGRAM FOR VOICE PROFESSIONALS - ASSEVOX

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ABSTRACT: The voice is an important vehicle of communication, being a significant instrument that mediates the educational process, in which vocal health must be understood as being effective, accessible and healthy, and must be produced without effort, in order to guarantee the listener's attention. **Objective:** This chapter seeks to describe the experiences lived by students who are part of a Vocal Advisory Program for Voice Professionals (ASSEVOX), which aims to accompany and guide from a vocal and communication point of view: actors, singers, journalists, teachers, telemarketers and other communication professionals. **Methods:** Observational and descriptive, the study consisted of filling out a semi-structured questionnaire with 13 questions, developed through Google Forms. **Results:** The data obtained reveal that during the 10 years of activity of the extension project, the average age of the participants is 24 years old, who are formed by students and professionals from Speech Therapy, Physiotherapy, Digital Media Communication and Psychology. Among the reports, it was possible to observe that participation in the vocal assistance program contributed to the formation of the members, as it provided an expansion of knowledge about vocal health, application of protocols and instruments for vocal assessment. **Conclusion**: The activities developed by the extensionists of the program contributed to their professional and academic training, while favoring a deeper understanding of issues related to the promotion and prevention of vocal health.

KEYWORDS: Voice, students, Speech-Language Pathology, Community Extension.

1 | INTRODUCTION

Vocal health is considered an important aspect of general well-being, and promotes an impact on the quality of life of voice professionals, such as professors, who use their voices as their main work tool, this resource appears to be important. in the relationship and communication between the teacher and the students, with relevant implications in the teaching-learning process (CEREST/CCD, 2006; VILLAS BOAS et al., 2012).

Vocal disorders can be observed among

teachers, in order to interfere in vocal quality, as well as in communication, and as a result of the aggravation, these professionals request removal from work in search of treatment (PRAES-FILHO et al., 2020).). Thus, it is necessary to understand the risk factors for vocal health, which can develop or worsen voice disorders among teachers and other voice professionals.

The factors that can cause voice disorders can be of environmental, organizational or associated with individual issues (GIANNINI; PASSOS, 2006; FREITAS et al., 2019). Thus, as a protective measure, it is important to carry out actions to promote and prevent the vocal health of voice professionals, such as teachers, singers, actors, journalists and other communicators.

Faced with the observation of demands from the community in Paraíba, in relation to vocal care, the university extension project Programa de Assessoria em Voz para o Professor (ASSEVOX), its first name, sought from its initial constitution to provide vocal assistance to public school teachers. and private spaces of João Pessoa. The funding of this project by the Probex 2012 Public Notice, from the Federal University of Paraíba (UFPB), contributed to the training of students, as they provided the realization of activities aimed at promoting vocal health and the well-being of teachers, which in the period of 2021, maintains a partnership with the Secretary of Education and Culture (SEDEC) of João Pessoa.

ASSEVOX is based on the concept of health promotion, which covers actions at the primary level (lectures, guidelines, lives and posts on social networks), secondary level (vocal assessments with the application of self-perceptive assessment questionnaires sent by Whatsapp, Instagram or Google Forms and use of software for voice analysis), and tertiary level (teleservice in voice therapy groups through digital platforms). The workshops/ teleservice held have a theoretical-practical approach and can be in the face-to-face or hybrid teaching modality.

The workshops proposed by the project seek to address important themes for vocal self-care, through the presentation of theoretical content such as: anatomophysiology of voice production; vocal psychodynamics; concept of normal voice/adapted voice/altered voice; expressiveness; main vocal pathologies; vocal care; importance of physical and organizational space for the proper use of voice; the impacts of using a face mask on the voice during the Covid-19 pandemic; and guidance on habits, posture and communication during professional activity remotely. Also in the workshops, practical contents are presented involving: vocal warm-up and cool-down techniques; breathing exercises and articulation of speech sounds; and cervical and body stretching.

In 2020, due to the SARS-CoV-2 pandemic and the isolation measures to reduce the spread of the virus, this project, after reflections on the continuity of actions aimed at the university community and its relevance for the training of students, sought to adapt their

actions to continue promoting vocal health promotion and welfare strategies. Among them, the use of social networks and the expansion of its target audience to all voice professionals, thus changing its title to Vocal Advisory Program for Voice Professionals (ASSEVOX).

In 2020, ASSEVOX activities were organized through biweekly meetings on the Zoom and Google Meet platforms, synchronously between the executing team: extensionists, employees and coordinators. During the meetings, activities were discussed and planned, which were also carried out through social networks, such as Instagram and Facebook, containing posts with expository content, videos, quiz and stories, seeking to reach voice professionals, undergraduate students in Speech Therapy and related areas, Speech-Language Pathology teachers and the general population about vocal health care.

ASSEVOX is supported by the teaching, research and extension triad, which is based on the ideal that extension is a space that promotes student autonomy and protagonism, with a view to the professional future. Furthermore, it values the point of view of extension workers and the knowledge acquired during their training, which facilitates the performance of important skills for the full exercise of Speech-Language Pathology and Audiology.

In view of the above, this chapter aims to report the experiences of the members of the Vocal Advisory Program for Voice Professionals (ASSEVOX), in relation to the knowledge acquired during the period of participation (2012 to 2021) in the extension activities.

2 | METHODS

The descriptive research used the quantitative-qualitative approach to obtain the data. The ASSEVOX extension project is linked to the research project "Voice of the Teacher: analysis of the effects of an intervention program" approved by the Ethics Committee in Research with Human Beings on May 27, 2021, under process number 091/13 (CAAE: 10719513.5.0000.5188).

For this research, 43 members of ASSEVOX, who participated in the project activities from 2012 to 2021, responded to the form provided. Of these, 38 were women and 5 men, with an average age of 24 years, the prevalence of members comes from the Speech Therapy course (n=39) with students or professionals, followed by Psychology courses (n=1), Communication of digital media (n=1), Physiotherapy (n=1) and Dentistry (n=1).

The questionnaire elaborated on the Google Forms platform contained 13 questions involving objective and discursive questions, which were divided between sociodemographic and perspectives on the academic trajectory and its relationship with ASSEVOX. The availability of the questionnaire occurred through the propagation of the access link through social networks (Whatsapp and Instagram) and emails, among the members of ASSEVOX. All data obtained were analyzed descriptively.

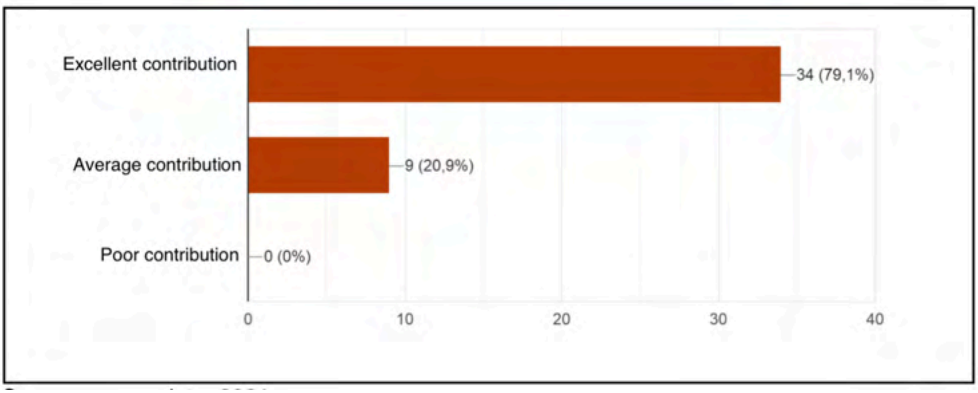
3 | RESULTS AND DISCUSSION

The answers obtained with the application of the semi-structured questionnaire allowed us to observe the students' perception about the influence of the ASSEVOX extension project on their academic formations. To this end, the six descriptive questions were designed with the aim of revealing the students' understanding of the points discussed through the speech.

Research, extension and teaching are pillars of the Federal Universities of Brazil, and together they positively impact society in general, as well as enrich the student training process. This triad has contributed to the realization and dissemination of scientific knowledge, as pointed out by Lobato et al. (2012). This way, the proposal of the ASSEVOX extension project aims to impact the training of its extensionists and help its target audience, that is, different voice professionals, such as teachers, singers, journalists, actors and other communicators.

Among the information obtained, it is possible to verify that the average permanence of the members in the program is four semesters, that is, two years, in addition, the entry has occurred since the first semester of the course. Furthermore, it was possible to observe the interdisciplinary character of the project, although the prevalence of extension workers are speech therapists, the opening to other scientific fields has allowed ASSEVOX members to share knowledge, although their specificities of the field of action are maintained.

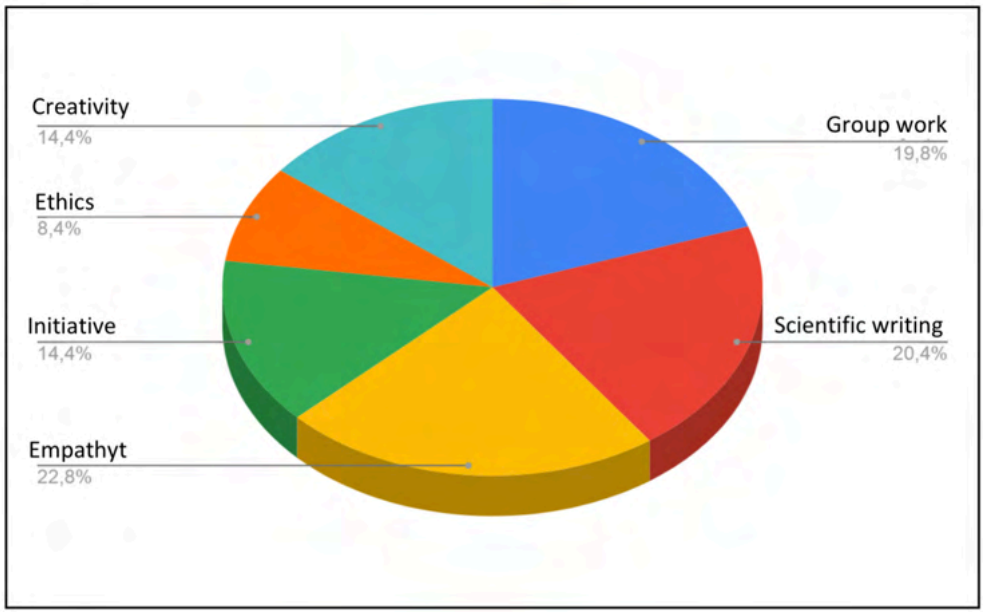
Goulart (2004). highlights the importance of extension as a learning mechanism in accordance with teaching processes, in which students in communities provide services. Thus, when asked about the contribution of the academic training project, 79.10% indicated a significant impact, while 29.90% showed a moderate impact (Graph 01).



Graph 1. Contribution of ASSEVOX in the professional training of extension workers.

Source: survey data, 2021.

According to Dubeux (2018), the projects developed at Universities provide civil society with access to different services, as well as contributing to the exchange of knowledge between professors, students and the community in which it is inserted. In this sense, the purpose of ASSEVOX is to provide those involved with the development of scientific and professional skills, such as: group work, empathic and ethical communication, consequently, enabling the arrival of dynamic information to the external community (Graph 02).



Graph 2. Skills acquired by ASSEVOX extension workers.

Source: survey data, 2021.

Through the analysis of the answers contained in the questionnaire, it was possible to observe that the participation in the project promoted an increase in empathy and a greater perception of group work, as well as an improvement in scientific writing and creativity (Graph 02).

According to the reports, after joining ASSEVOX, it was possible to expand different subjects, for example, on the professional voice, as well as in relation to evaluation and intervention practices. Students who had taken subjects in the voice area in the Speech-Language Pathology course reported having experienced theoretical knowledge with the extension project.

ASSEVOX has contributed to the training of students, through activities focused on monitoring its audience, that is, on the evaluation and vocal intervention of teachers, singers, actors, journalists and other voice professionals. This way, the action of extension

workers in the community has been beneficial in terms of fixing theoretical content, as well as for the acquisition of other professional skills. In addition, the work of professionals from different areas allows the expansion of action possibilities, for example, the psychological orientations during the workshops.

As reported, participation in the extension program allowed undergraduate students to observe the knowledge acquired during the curricular subjects in practice, as well as allowing the on-site verification of the speech therapist in school spaces, while for postgraduates it favored professional maturation. Regarding the interaction with voice professionals, the members reported that they analyzed this practice as acting without empathy and distant from the claimant.

According to Telles and Acre (2015), extension experiences are important for academic training, as it is in them that learning activities are experienced in practice in an interdisciplinary way. To this end, an adequate support network is necessary for the consolidation of guidelines in the process of articulation between teaching and performance. Thus, it is possible to highlight that the activities undertaken by ASSEVOX allow students to expand their knowledge about vocal health, whether from a general point of view or in relation to its qualitative specificities.

Regarding the integration of theoretical knowledge and academic experiences, both provided by the extension project, all students (n=43) reported having expanded their perception of voice, especially that of communication professionals. According to Jezine (2006), university extension is a fundamental part of the training of professionals, insofar as their social dynamics occur through the production of integrated relationships between teaching and research practices, that is, they presented a theoretical and practical vision.

The study conducted by Maciel et al. (2021), indicated that Speech-Language Pathology graduates, during graduation, participated in extension projects that present greater chances of entering the job market, due to the various skills acquired. According to the report of ASSEVOX members, the skills, competences and experiences provided during their participation are of great importance, as they were responsible for critical and professional improvement.

As indicated by the project members, they felt able to relate the extension activities with the anatomical, audiological and educational and clinical Speech-Language Pathology and Audiology field contents, in addition to having a better understanding of the professional voice area through discussions and actions. developed by ASSEVOX.

According to Paula et al.(2020) in the academic context, university extension activities are an inloco source for the learning of students (undergraduate and graduate students), like the experiences within the work context of each professional. The promotion of the perception of health promotion and early intervention were central points during the

ASSEVOX actions, in which the extension workers, when participating in the planning and execution stages, acquire different skills.

Students who started in the project, since the beginning of their graduations, indicated that they understood the use of important instruments for vocal assessment. Thus, the practices subsidized the understanding of the construction of workshops and effective training to work in the area of professional voice, the experiences on the guidelines of the target audience are pointed out by the extension workers as important points in academic training.

The students reported the use of the following instruments for voice assessment: Vocal Health and Hygiene Questionnaire (QSHV), Quality of Life in Voice (QVV), Vocal Production Condition – Teacher (CPV-P), Screening Index for Speech Disorder Voice (ITDV), Job Stress Scale (JSS), Corporal Pain and the Vocal Analysis Profile Scheme (VPAS), as well as Praat and Sound Forge software for observation of voice samples. According to Casa Nova et al. (2010), students graduated in Speech-Language Pathology and Audiology need to undergo technical training so that they can develop their activities with the population in a more effective and quality way. In addition, their actions must be directed to the prevention, promotion, protection and rehabilitation of health.

In general, the use of the instruments contributed to the understanding of their application and the speech-language pathology work with voice professionals, as well as broadening their perception from a practical point of view, since such instruments were used extensively under the supervision of speech therapists and ASSEVOX coordinators.

In general, students emphasized being able to make theoretical and practical associations about the acquired knowledge and curricular contents, as the experience with voice professionals favored the establishment of academic learning. The curriculum of Speech Therapy courses in Brazil has encouraged academic training with pedagogical practices in which students participate in seminars, tutoring, workshops, training experiences, so that their training acquires a professional character in line with the demands of the population (TRENCHE; BARZAGHI; PUPO, 2008).

When asked about participation in other activities, such as scientific initiations, about 51.00% (n=21) of extension workers said they had participated, and this experience contributed to the evolution of academic writing, scientific thinking, reflection on the performance professional training, participation in events and writing articles and academic abstracts. The challenges presented in the project, due to their complexity, were of paramount importance in the maturation of academic thinking.

When using the aforementioned protocols, the members report obtaining greater basis for characterizing the voice, especially that of the teachers. For Pivetta et al. (2010), undergraduate and graduate students, when participating in extension, research and

teaching practices, build skills such as autonomy and critical thinking about social practice, and thus can act in order to transcend merely theoretical teachings, because they are able to contextualize and observe situations in a broader way.

Regarding teaching activities at undergraduate and graduate levels, about 25.00% of extension workers (n=11) reported having participated in teaching activities. These activities were important for the students, because when they participated in the planning and execution stages of the classes, they were able to theoretically and practically reflect on the teaching actions.

In view of the pandemic context resulting from Covid-19, the members claimed to have developed remote activities during this period, which were measured by technological resources that provided dynamism and increased creativity, in addition to new experiences with the target audience. The subjects reported that the digital context positively incorporated online meetings, which were used for planning and debating ASSEVOX project actions.

According to the reports, the continuity of the project, during the pandemic context, made it possible to carry out theoretical deepening, as well as allowing the exploration of new approaches to the dissemination of scientific content, such as social networks (Instagram and Facebook), through a more accessible language aimed at society. Among the adjustments experienced by the extension, the use of social network platforms, such as Instagram and Facebook, it was possible to promote greater interactivity with the community, as the space allows the dissemination of guidelines on self-care and vocal hygiene respecting the appropriate guidelines. speech therapy.

4 | CONCLUSION

It can be concluded that the period of entry and exit of the students, associated with the reports in the extension activities, were significant insofar as, when they left after four semesters integrating the extension, the students presented skills that helped in the practices of the supervised internship.

In addition, the extension workers stated that, through the activities and experiences provided by the ASSEVOX extension, they were able to grow professionally and personally.

Finally, the extension workers interviewed reported that their perception of the application of evaluation questionnaires and the development of actions to promote and prevent vocal health contributed to their training as future speech therapists. Regarding the activities developed in the pandemic period, it was possible to observe a greater proximity to the entire community, in which the informative actions disseminated through digital media, made it possible to promote vocal health.

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CAPÍTULO 2

ASSEVOX THAT MADE SENSE: EXPERIENCE REPORTS FROM PUBLIC SCHOOL TEACHERS IN JOÃO PESSOA, PB

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ABSTRACT: In the Brazilian context, it is possible to observe a concern about the vocal health of teachers. In view of this, preventive and interventional actions are carried out, under the guidance of qualified and trained professionals. The extension project Voice Advisory Program for Teachers (ASSEVOX), linked to the Federal University of Paraíba (UFPB) has promoted actions of guidance, evaluation and intervention to different professionals, such as actors, singers, teachers and other communicators. **Objective:** the chapter seeks to present and analyze some experience reports of participants accompanied by the program. **Methods:** The speeches of 03 teachers from the municipal education network of João Pessoa, all female, were analyzed in light of the system of evaluation system of the systemic-functional linguistic theory. **Results:** in the reports, it was found that the teachers showed satisfaction in participating in ASSEVOX. **Conclusion:** the extension project generated a reflection and changes in vocal health habits in the participants, providing a positive effect both on vocal quality and on their lives.

KEYWORDS: Voice, Faculty, Communication, Speech, Language and Hearing Sciences.

1 | VOCAL HEALTH PROMOTION ACTIONS

The actions to promote the vocal health of the teacher aim to broaden the teacher's perception of vocal education, alleviate the damage to their vocal health, as well as instruct this individual on vocal practices that are favorable to their professional practice. Activities that emphasize the importance of the voice, self-care and prevention reduce the presentation of vocal alterations, improving the professional performance of the assisted teachers (LUCHESI et al., 2010).

Lima-Silva et al. (2019) show the importance of the need for public policies that promote health in school environments. To avoid future pathologies, it is necessary to set aside pre-established extension actions in schools that do not meet the specific needs of the public served.

In Brazil, the dissemination of scientific works based on speech therapy actions carried out with teachers is notorious. For example, Silverio et al. (2008) promoted meetings, experience groups, with teachers from a public school in the city of Piracicaba (SP). During these meetings, several theoretical and practical contents were presented to professionals as a way to raise awareness and sensitize them about the need for voice care. In this intervention, there was an improvement in voice care and in the understanding of intervening factors and determinants of voice disorders.

Recently, a research developed by Penha et al. (2021), aimed to verify the effectiveness of a vocal advisory program in the hybrid teaching modality for teachers of municipal education in João Pessoa-PB. Two face-to-face vocal health workshops and two online workshops were held, which addressed theoretical and practical content regarding voice production and care for it. At the end of the workshops, it was found that the hybrid program promoted an increase in vocal health knowledge, reduced risk for voice disorders and improved teachers' vocal quality. The literature points out that actions in vocal health with teachers can help to reduce voice disorders and better use of the voice in the occupational environment, which, consequently, provides a better quality of life (PAIVA et al., 2017).

From this perspective of speech therapy assistance with the teacher, the Vocal Assistance Program for Voice Professionals (ASSEVOX) of the Federal University of Paraíba (UFPB) is aimed at all elementary and high school teachers from public and private schools in João Pessoa, Paraíba. (PAIVA et al., 2017). In the actions that resulted in the reports analyzed in the present study, the students participating in ASSEVOX, under the supervision of the project coordinators, carried out actions that proposed to the teachers the awareness and knowledge of vocal health. Throughout the advisory program, the students also closely checked the reality in which the professionals were inserted, as well as the factors favorable to vocal illness in the work environment (LIMA et al., 2018).

With this action carried out by the ASSEVOX program, the importance of a speech-language pathology monitoring in the advising of the teacher regarding the proper use of the voice in the professional exercise was reinforced. The feedback presented by the participants guided the understanding of the progress of the advisory process. Through them, information was obtained about individual performance, as well as about the behavior, event or activity performed, favoring the proposition of more specific actions to guide future activities (COSTA et al., 2009). To illustrate this process, this chapter proposes to present and analyze experience reports of teachers from the public school system in the city of João Pessoa-PB assisted by ASSEVOX.

In order to understand and perceive the agents involved in the counseling process, the speech-language pathologist can use different theories to support his analysis. For example, the evaluative system of the systemic-functional linguistic theory that, through discourse, makes it possible to understand the speaker's impressions on certain aspects.

Below, some considerations about this system will be presented.

2 | ASSESSMENT SYSTEM

Through language, even if unconsciously, we make assessments of the most varied circumstances, objects and people at all times. To do so, we make linguistic choices that can praise or detract from what is being evaluated. According to Vian Jr. (2009), the theoretical interest regarding how the evaluation process takes place textually in the sense presented here goes back more significantly to the 1970s and 1980s, mainly from the work of Labov. Before that, other works have already discussed this perspective and, later, Martin and Rose (2003) strengthened this area through the evaluative system, which is the interest of the present study.

It is worth noting that such a system comes from the Systemic-Functional Linguistic theory. For whom language is understood as a semiotic system subdivided into three strata, namely: a semantic-discursive one, linked to meanings, in this stratum is the evaluative system; a lexical-grammatical one, linked to the sentence level and a grapho-phonological one, linked to the level of letters and sounds (VIAN JR, 2010).

The evaluative system is divided into three subsystems, namely: involvement, attitude and gradation. For our study, the attitude subsystem is of interest, which, according to Vian Jr. (2010), is categorized by the presentation of emotions through three types of resources: affection (expressing emotion); judgment (judging character) and appreciation (attributing value to things). We will stick to the affection resource.

Emotions in the affect field can be expressed by positive or negative feelings about things, people and events. For this purpose, a lexical element or an entire sentence can be used. Martin and White (2005 apud ALMEIDA, 2010) emphasize that there are six factors to be considered for the identification of affection. The sixth factor calls our attention, according to which emotions are grouped into three sets, namely: happiness/unhappiness; security/insecurity and satisfaction/dissatisfaction. This factor will be exemplified in the results and discussion section.

3 | METHODS

The study, characterized as exploratory and descriptive, had the participation of three teachers from the municipal school system in the city of João Pessoa-PB, who reported their experiences with ASSEVOX in the period 2019. The analyzed data are a reflection of the research project Teacher's Voice: analysis of the effects of an intervention program, which was approved by the Research Ethics Committee on May 27, 2021 under CAAE: 10719513.5.0000.5188.

The reports were collected at the end of the vocal health workshops, one of the actions of prevention and promotion of vocal health applied by the university extension ASSEVOX during the period of execution of the program. In the workshops and other actions, topics such as: vocal care, which include breathing exercises, vocal warm-up and cool-down, cervical and body stretching, were addressed. In addition, professionals received advice on the most recurrent causes of voice disorders and laryngeal diseases that most affect teachers, enabling them to identify possible voice disorders that may develop during the course of the profession.

About the participants, selected by sampling, there was the collaboration of three women aged between 42 and 51 years and with an average of 11 to 26 years in the profession.

The reports acquired during the participants' interaction with the ASSEVOX Program were transcribed and analyzed using the evaluative system of the systemic-functional linguistic theory, with emphasis on the affect resource of the attitude subsystem. The results are displayed in the following section.

4 | RESULTS AND DISCUSSION

The data discussed in the study reflected the perception of the teachers who were monitored by the ASSEVOX team. Let us see below what excerpts from the reports of the three participants, henceforth identified as F1, F2 and F3, revealed.

F1: "I was lucky to participate in this voice project. I **believe** it is **of paramount importance**."

When referring to the impact that ASSEVOX had on their professional lives, all participants presented, within the field of affection, evaluations that demonstrate, above all, security and satisfaction.

From the point of view of the evaluation system, the excerpt referring to F1 revealed a regularity identified in this analysis, the expression of satisfaction for having participated in the program. According to Ribas, Penteado and Garcia-Zapata (2014) voice professionals, specifically teachers, need specific guidance on the proper use of voice in the classroom, since as a result of environmental conditions and high workload several medium and long-term vocal problems arise.

F1: *"I was super happy because... we are caregivers and, for **having someone who takes care of us**... So, within this **important process**, it brings us necessary information for our day-to-day.... So... this project comes as a warning: Teacher, be careful. You never retire. So, if necessary...."*

F2: *"The issue of the ASSEVOX lectures was of **great value** because, until then,*

there was no such apparatus *in schools and, thus, it was* ***a good news****."*

In the excerpts above, extracted from the reports of F1 and F2, through linguistic occurrences such as: 'someone who takes care of us', 'super happy', 'important process', 'of great value', indicative of security, happiness and satisfaction, the positive evaluation about the participation in the program was evidenced. What led us to believe that this public, in fact, lacked a care directed to the main instrument of work, the voice.

With regard to vocal self-care, the training of education professionals, especially educators, has gaps in its curriculum, as there is no specific guidance on voice care in the initial training of this professional. Which is quite worrying, since the classroom context induces the use of vocal adjustments, such as increasing pitch and loudness levels, which are harmful to vocal health (ALBUQUERQUE, 2013).

Corroborating this issue, Lima-Silva (2012) identified that decreased pitch variability, high habitual pitch, high habitual loudness, rapid speech rate and decreased loudness variability were present in the teachers participating in their study. Therefore, by not having a look at the practices of vocal care in the classroom, teachers can trigger vocal symptoms or even voice disorders with or without laryngeal lesion.

F3: *"But* ***the issue of resting, drinking water, always hydrating, the issue of food****... All this knowledge only* ***contributed to a better professional positioning*** *of mine. Thank you."*

In the excerpt above, extracted from F3's report, it was evident how ASSEVOX's performance contributed to a change in attitude regarding the vocal self-care of this professional, that is, it potentiated the active participation of this professor in his own vocal health, being the protagonist of this care. Mentioning the acts of resting, drinking water and taking care of food revealed the acquisition of new knowledge that contributed, according to the speaker, to a better professional positioning.

As for personal care practices, teachers who have greater knowledge about vocal hygiene demonstrated to perceive more easily, in relation to the others, vocal fatigue and the appropriate moments for voice rest (PAULA et al., 2019).

F1: *"****Every day more teachers get sick*** *for different reasons and* ***voice is a very serious problem.*** *Can develop nodule problem, Reinke's Edema problem****, cracks,*** *among others."*

F3: *"****We will only seek Speech Therapy at the moment when we lose our voice,*** *when* ***we leave the classroom*** *because of vocal cords with problems. This makes us* ***sad****."*

The report presented by F1 confirmed the perception of the existence of a lack of vocal self-care on the part of the teacher. In the excerpt from F3's report, it was possible to perceive the feeling of unhappiness, verbally explained by the lexical element 'sadness'. This feeling also carries the idea of insecurity and dissatisfaction about self-care with the

voice. This way, it was possible to observe the positive effect of ASSEVOX's vocal health prevention and promotion actions on the lives of the analyzed teachers, because, according to the reports, the actions contributed to vocal self-care, with a view to promoting positive effects on the general health of the teachers. educator, as well as classroom engagement.

F1*: "**I believe that the University, with this project, gives a very big return to the public** because **you don't just stay there consulting. This project is wonderful** because many times, people come to the University, they don't do case studies, they don't give us any feedback and they don't help us …"*

F2*: "**IT WAS WONDERFUL** because we didn't know. he took away the doubts …"*

The statement 'don't just stay there consulting' expressed by F1, showed that the research and extension activities developed, in general, were restricted to the academic scope. In contrast, the insertion of ASSEVOX in public schools in João Pessoa proved that extension actions with a focus on teachers contribute to a better development of the activities performed, consequently, having a positive effect on the performance of these professionals. Lima-Silva et al. (2019) emphasize the need for extension actions to extend to school environments, permeating the reality experienced by teachers, so that it is possible to outline specific and effective activities consistent with the experiences of the favored public.

In this sense, we highlight the constructions: 'they don't do a case study', 'they don't give us feedback', 'they don't help us' 'we didn't know'. Such statements refer to collaboration in research that did not bring any return to the participants. The sequence of negatives, carried out by the lexical element 'no', reveal the feeling of unhappiness in this scenario.

However, in the same excerpts from the reports, when referring to ASSEVOX, the participants used the lexical elements "wonderful" and "wonderful", reinforcing the prevalence of the evaluation of affection in the field of satisfaction. Thus, it is clear that the objective of improving the quality of life of education professionals through voice care was fulfilled.

F1*: "I can only **thank** you and hope that more projects in this direction are carried out."*

*F2: "So the participation of ASSEVOX here **was wonderful**."*

*F3: "It is **very important** for you to work with public school teachers. **Very grateful. It served a lot…"***

The linguistic achievements 'I can only thank you', 'I am very grateful', 'it was very helpful' contained in the speech of F1, F2 and F3, once again reinforce the feeling of satisfaction in the face of participation in the program.

Affect as a semantic resource presents, according to Martin (2000, p. 148. Apud

Almeida 2010, p.101), “how speakers/writers behave emotionally in relation to people, things, objects and events.” For the identification of affection, Martin and White (2005 apud Almeida, 2010) mention that they can be grouped into three sets: happiness/unhappiness, security/insecurity and satisfaction/dissatisfaction.

Regarding the happiness/unhappiness set, emotions are related to the heart, such as sadness, hate, happiness and love (ALMEIDA, 2010, p.105), that is, this grouping of emotions converges to the phenomenon of liking or not something. As it can be seen in the example extracted from the corpus: “I was very **happy** because...”. It appears that the lexical element ‘happy’ is the linguistic expression of the feeling of happiness of the subject served by ASSEVOX.

The security/insecurity set includes emotions that are related to social well-being: anxiety, fear, trust. According to Almeida (2010, p.105), “these emotions involve our feelings of peace and anxiety in relation to the environment, including the people around us. In the example extracted from the corpus: “In general, we feel **careless** in this part of the voice...” the lexical element “careless” is the verbal expression of the feeling of insecurity regarding vocal care before participating in ASSEVOX.

The satisfaction/dissatisfaction set, on the other hand, encompasses the feeling of achievement or frustration in relation to the activities in which the language user is engaged (ALMEIDA, 2010). Such a feeling can be given considering the different roles of the individual in front of the evaluated object, either as a producer or spectator/participant of the action. In the example extracted from the corpus: I only have to “thank you...” the lexical element “**thank you**” expresses the subject’s feeling of satisfaction.

By providing teachers with moments of externalizing their difficulties, it is possible to map and outline strategies that help them, in addition to presenting solutions to their difficulties.

5 | CONCLUSION

Through the actions developed by ASSEVOX, there was a positive effect on the vocal quality and aspects of life of the teachers, as the analyzed reports showed that the teachers participating in the extension project became more reflective about vocal self-care and revealed changes in their behavior. voice-related habits.

It became evident that it is necessary and urgent to rethink the curricula of undergraduate courses in order to guarantee specific attention to the use of voice and communication to promote a better performance of this professional in the classroom. In this sense, we understand that the teaching activity needs to be seen in a more humanized way. This involves actions that guide vocal self-care by this professional. Such actions tend to directly impact the individual’s quality of life and will certainly reflect on better teaching

performance.

It is left here to reflect on how feasible it would be to implement effective public policies that would allow for the notification of cases of voice disorders, aiming at directing them to public services in Speech-Language Pathology and other areas, if necessary.

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CAPÍTULO 3

SELF-PERCEPTION OF THE EXPRESSIVITY OF THE TEACHER OF EARLY CHILDHOOD EDUCATION IN REMOTE EDUCATION

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ABSTRACT: Among the different forms of communication, expressiveness is a resource used to improve the transmission of messages and learning within the school context. Communication parameters can be used in the classroom to promote interaction and understanding of students. **Objective:** To verify the communication of early childhood education teachers in relation to the use of voice and expressiveness. **Methods:** 35 teachers of early childhood education, belonging to public and private schools in Brazil participated. As inclusion criteria, the following were established: teachers of both sexes, active in early childhood education and who were teaching remotely. An online questionnaire was developed through Google Forms, containing 4 sections and 47 questions. The sections of interest for analysis were the first and last sections. The first section included the socioeconomic data in order to characterize the audience and the fourth section entitled "Communication and Expressiveness of Teachers in Remote Education". The propagation of the access link to the online questionnaire started through the social networks WhatsApp and Instagram. **Results:** It was identified that most teachers were female. As for self-perception, most of them said they liked their voice and defined it as pleasant. Teachers reported that body and facial expressions are considered important resources to teach classes. Furthermore, most teachers reported vocal fatigue and hoarseness as the most frequent vocal symptoms. **Conclusion:** It was possible to identify that most teachers claimed to recognize the use of facial expressions, body and gestures, ensuring the use of these even when in virtual classes. In addition, there were complaints of vocal symptoms such as vocal fatigue and hoarseness in the voice after classes.

KEYWORDS: Faculty, Self Concept, Education, Distance, ChildRearing.

1 | INTRODUCTION

The Covid-19 pandemic has brought considerable changes to students and teachers, due to social isolation and health measures. For this reason, the educational system was one of the most affected, so face-to-face educational programs were paralyzed to prevent the spread of the SARS-CoV-2 virus. Therefore, the Ministry of Education recommended continuing school activities remotely.

Early childhood education, one of the levels affected and targeted at online teaching, is the first stage of basic education and aims to educate and care for children from zero to five years of age in day care centers and preschools. According to the National Curriculum Guidelines for Early Childhood Education (DCNEI), the guiding axes of pedagogical practices for this stage of teaching are interactions and games that must guarantee diverse experiences for the child to learn and develop in an integral way (BRAZIL, 2010).

As they are not yet literate, children in early childhood education tend to communicate in different ways, so it is important to ensure their bond with languages, including expressive ones, providing them with greater knowledge of the world (FARIA, 2014).

Therefore, we can understand that the child has several modes of expression and innumerable forms of language, which are acquired through experiences in perceiving, feeling and interpreting the world. For this reason, the training of the teacher inserted at this level of education is of paramount importance, especially when talking about the recognition of communication with the child through the various languages (FARIA, 2014).

In the case of teaching, as in other professions, for good communication, important aspects such as speech, voice and body must be taken into account, as vocal and expressive resources may allow students to enhance learning and memorization. In addition, articulation, gestures and speech rate may directly interfere with the transmission of the message (AZEVEDO et al., 2014).

From the exposed context, the general objective of the research was to verify the communication of early childhood education teachers in relation to the use of voice and expressiveness.

2 | METHODS

This is an observational, descriptive, cross-sectional and quantitative study. This was approved by the Ethics Committee in Research with Human Beings, on May 27, 2021, of the home institution, under process number 091/13 (CAAE: 10719513.5.0000.5188). Initially, the participants signed the Free and Informed Consent Term (TCLE) in accordance with Resolution MS/CNS/CNEP No. 466/12 of December 12, 2012.

Participated in this research 35 teachers of early childhood education, who work

in the public and private education network in Brazil. As inclusion criteria, the following were established: teachers of both sexes, working in early childhood education, who were teaching in remote education and who signed the TCLE.

Data collection for this research was carried out between January 2021 and June 2021, and developed through an online questionnaire. Initially, the form presented the TCLE, in accordance with the recommendations of resolution 466/12 of the National Research Ethics Commission (CONEP), in which the participant could only continue to fill in the questions after their acceptance.

To carry out the study, the online questionnaire was prepared through Google Forms, containing 4 sections and 47 questions. In the present research, the section of interest for analysis were the first and fourth sections. The first section included socioeconomic data in order to characterize the research audience. The fourth section entitled "Teacher's Communication and Expressiveness in Remote Teaching" sought to collect data about the self-perception of vocal aspects, and questions related to the self-perception of expressiveness.

The disclosure of the access link to the online questionnaire began through the social networks WhatsApp and Instagram, more precisely, through the profile of the Voice Advisory Program (ASSEVOX), an extension to which this research is linked.

Data were tabulated and analyzed using descriptive and inferential statistics using the Statistical Package for Social software.

Sciences (SPSS, v. 20, IBM, Chicago, IL). A descriptive analysis was performed using measures of central tendency, measures of dispersion and frequency analysis of the study data. Some data were analyzed by inferential statistics, applying a statistical test to verify association hypotheses through the chi-square test (X2) considering a significance level of 5%.

3 | RESULTS AND DISCUSSION

Thirty-five teachers participated in the research, 94.30% (n =33) women and 5.70% (n =2) men, with a higher number of females compared to males, however, even with a considerable discrepancy between this class, it is necessary to reaffirm the value of male presence in the performance of activities in early childhood education.

Variable	n	%
Sex		
Female	33	94,30
Male	2	5,70
Education		
Md. Education	4	11,40
higher education	15	42,90
Post-graduation	14	40,00
M.Sc.	1	2,90
Doctorate	1	2,80
Education Network		
Public	18	42,90
Private	15	51,40
Public and Private	2	5,70
Hourly load		
Up to 1 hour/day	1	2,90
Up to 3 hours/day	3	8,60
Up to 5 hours/day	15	42,90
Up to 6 hours/day	7	20,00
8 hours or more/day	9	25,30

Subtitle: a: Med. Education. = High School Complete; Sup. Comp. = Higher Education Complete. Source: survey data, 2021.

Table 1 **-** Characterization of the sample regarding the variables gender, schooling, work in education networks and daily working hours of the teachers participating in this research. João Pessoa, 2021.

In table 1, it was identified that 42.90% (n = 15) stated that they had completed higher education, thus, it is noteworthy that the people inserted in this category have a specified education, especially those who work in early childhood education, the basic and initial phase of student life.

Of the 35 participants, 18 (51.40%) worked in public schools and 15 (42.90%) in private schools. As for the workload, 15 (42.90%) of the teachers reported working up to 5 hours a day remotely, since teaching in this modality requires more caution and involves more services such as the preparation of digital materials, video classes and preparation of extra activities, reconciling everything to the adaptation of the *home office*.

Variable	n	%
You like your voice		
No	12	34,30
Yes	23	65,70
Voice rating		
Pleasant	19	54,30
Unpleasant	4	11,40
Never thought about it	12	34,30
Frequency of hoarseness in voice		
Never	2	5,70
Rarely	10	28,60
Sometimes	15	42,90
Always	6	17,10
Don't know	2	5,70
How do you define the volume of your voice		
Loud	18	51,40
Appropriate	14	40,00
Low	3	8,60
How do you define the intensity of the voice		
Strong	18	51,40
Adequate	15	42,90
Weak	2	5,70
Vocal fatigue after remote lessons		
Never	1	2,90
Rarely	6	17,10
Sometimes	22	62,90
Always	6	17,10
How you define your speaking speed		
Fast	15	42,90
Adequate	19	54,30
Slow	1	2,80
How you define your articulation		
Precise	23	65,70
Imprecise	6	17,10
Stuck	1	2,90
Exaggerated	5	14,30

Table 2 – Characterization of the sample in the communicative voice aspects of the teachers participating in this research. João Pessoa, 2021.

Source: survey data, 2021.

When analyzing table 2, it was found that 65.70% (n=23) of the teachers liked their voice and 54.30% (n=19) classified their voice as pleasant and their speech rate as adequate. These factors are positive for work performance as a voice professional, especially for those who work in early childhood education who need to be in vocal harmony to better interact with children. It was also observed that the fact that the students asked the teacher to repeat the content taught was not related to the teacher's self-perception regarding the volume of his voice (p=0.956) or its intensity (p=0.961), nor with the speech rate (p=0.699).

The teacher's voice is a consequence of the precarious conditions of the environment, organization, personal work relationships and even financial devaluation that involves the profession (FERREIRA et al., 2012). When observing that vocal alterations are very present in the life of teachers, one soon thinks about the specific factors of this profession that may be related to the development of these alterations (ZENARI, 2006).

For these reasons, it was possible to observe in the sample that 42.90% (n=15) reported feeling hoarse in their voices most of the time they performed their work role; 51.40% (n=18) defined that the volume of their voice is high and the intensity is strong; in addition to that 62.90% (n=22) identified that they sometimes have vocal fatigue after teaching remote classes.

There are many studies in the literature that refer to vocal changes and complaints, but there is a scarcity when the theme is about the communicative performance of teachers (AZEVEDO et al., 2014). Teaching in distance learning is a challenging reality for teacher training, as it involves adapting practices to the possibilities and formats of a media educational process with the production of virtual classes under a new dynamic (SANTOS, 2011; BARROS; CARVALHO, 2011; SOUZA; MOITA; CARVALHO, 2011), requiring the use of effective expressive communication to transmit good content.

Variable	n	%
Do you believe that body expression is important in your classes?		
Yes	34	97,10
I have never thought about	1	2,90
Do you believe facial expressions are important in your classes?		
Yes	34	97,10
Never thought about	1	2,90
Do you use body expressions in your classes		
Rarely	2	5,70
Sometimes	14	40,00
Always	19	54,30
You use gestures during your classes		
Rarely	1	2,90
Sometimes	13	37,10
Always	21	60,00
Uses facial expressions during class		
Never	1	2,80
Rarely	3	8,60
Sometimes	10	28,60
Always	21	60,00
Asks students to repeat the content spoken		
Never	2	5,70
Rarely	6	17,10
Sometimes	22	62,90
Always	4	11,40
Don't know	1	2,90
Have you received training on expressiveness and voice		
No	30	85,70
Yes	5	14,30
I would like to receive materials on voice and expressiveness		
I would like to	29	82,90
I don't see the need	6	17,10

Table 3 – Characterization of the sample in the communicative aspects of expressiveness of the teachers participating in this research. João Pessoa, 2021.

Source: survey data, 2021.

In table 3, 97.10% (n=34) of teachers believe it is necessary to use body and facial expressions in class, however, when asked about the use of body expressions, only 54.30% (n=19) said always use them to teach classes and 60.00% (n=21) said they always use facial expressions.

The last data exposed are quite significant, as they demonstrate the self-perception of early childhood teachers regarding the need for communicational self-care, so that they can improve the experience of children in remote teaching. Furthermore, the value of speech therapy in these differentiated spaces, such as the school, has gained expansion in order to provide health promotion with more quality of interaction between teacher and student, in addition to promoting communicational self-perception.

This way, the findings found in this research may expand knowledge about voice and expressiveness in remote teaching, contributing to a better performance of teachers' communication. It is expected that more studies will be developed with this theme, mainly, with the purpose of analyzing the effects of a speech therapy intervention on the teachers' self-perception regarding their voice and expressiveness.

4 | CONCLUSION

When investigating the self-perception of early childhood teachers in relation to communication aspects in remote teaching, it was possible to identify that most teachers said they recognized the use of facial, body and gesture expressions, ensuring their use even when in a virtual classroom. However, they are often harmed in their service due to the lack of use of communication parameters, causing aggravations such as vocal fatigue after classes and constant hoarseness in the voice.

Some of the teachers recognized the communicational need for better teaching and motivation of students in remote classes. Thus, there is a need for support to provide greater comfort to the teaching category, with regard to communication, including voice and expressiveness.

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CAPÍTULO 4

WORK AND VOICE CONDITIONS OF ELEMENTARY EDUCATION TEACHERS IN THE REMOTE CONTEXT

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ABSTRACT: The SARS-CoV-2 virus pandemic brought a new work context to teachers, remote teaching. In this new context, harmful factors to the voice can favor the illness and leave of teachers. **Objective:** To verify the working and voice conditions of elementary school teachers in the remote context. **Methods:**This is an observational, descriptive, cross-sectional and quantitative study, approved by the Ethics Committee for Research with Human Beings of the institution of origin, under CAAE:10719513.5.0000.5188. 64 elementary school teachers who teach in remote education participated. Data were collected through an on-line questionnaire using the Google Forms tool and transmitted through social networks. Data were analyzed using SPSS statistical software. **Results:** It was found that most teachers worked eight hours or more a day and taught four subjects or more. During remote teaching, teachers pointed out that there was an increase in stress and that the most present vocal symptoms were hoarseness and vocal fatigue. **Conclusion:** The research shows that in the remote context, elementary school teachers are susceptible to factors that influence the emergence of voice disorders.

KEYWORDS: Voice, Faculty, Working conditions. On-line teaching, Occupational health.

1 | INTRODUCTION

The teacher is a professional who uses the voice as a vehicle of direct communication with students and who needs it to perform his job function. Through the voice, teachers transmit knowledge and create bonds to develop the learning process, as well as use it in the interaction and construction of emotional bonds with students (MARÇAL et al., 2021). According to the literature, teachers are the individuals who have a higher incidence of vocal disorders, due

to exposure to organizational and environmental factors (PENHA et al., 2021).

As a consequence of the multiple risk exposure factors, symptoms such as hoarseness, sore throat and vocal fatigue may arise, these are some observed signs of vocal abuse or voice use in inappropriate working conditions, which can corroborate the emergence of a possible work disorder (LOPES et al., 2018). The vocal demand, the sociodemographic factors and the risks directly related to both the organization and the work environment have an impact on the occurrence of voice disorder (FREITAS et al., 2019).

In 2019 a virus (SARS-CoV-2) was identified from China and months later there were thousands of cases spread around the world. As a result of the arrival of the virus in Brazil (known as Covid-19), schools implemented remote teaching and this virtual context brought besides innovation in education, a work overload to teachers. These professionals are under constant pressure and demands, with lack of delimitation of working time because of the adaptation of their teaching activities, daily routine of domestic and family activities, frustrations and fatigue, causing an intensification of work for these professionals (MARQUES, 2021).

With the new reality, teachers were forced to migrate from face-to-face teaching modality to the online modality, however, these professionals had no training or tools to help them in this transition. This lack of planning can cause several problems, considering the predisposition of these individuals to develop vocal disorders (OLIVEIRA;JUNIOR, 2020).

Given this context exposed, this research aims to verify the working conditions and voice of elementary school teachers in remote education.

2 | METHODS

This is an observational, descriptive, cross-sectional, quantitative study, approved by the Ethics Committee for Research with Human Beings of the institution of origin on May 27, 2021, under process number 091/13, under CAAE:10719513.5.0000.5188. At first, the participants signed the Informed Consent Form (ICF) according to the MS/CNS/CNEP Resolution n° 466/12 of December 12, 2012.

A total of 64 teachers of both genders, teaching in public and private schools in Brazil, of elementary level I or II, who were working in remote education, participated in the current research.

A virtual questionnaire was developed through the Google Forms tool, comprising 4 sections and 47 questions related to socio-demographic characteristics, professional performance, synchronous and asynchronous daily workload, working conditions in the current context, as well as self-perception of communication and expressiveness aspects. The dissemination of the link to access the online questionnaire was through WhatsApp and Instagram.

The data were tabulated and analyzed using descriptive and inferential statistics in the software Statistical Package for Social Sciences (SPSS, v. 20, IBM, Chicago, IL). Descriptive analysis was performed using measures of central tendency, measures of dispersion, and frequency analysis of the study data.

3 | RESULTS AND DISCUSSION

Teachers are professionals who use the voice to perform their jobs and therefore have a high risk of developing vocal disorders due to the presence of multifactors in the work environment (PIZOLATO et al., 2013). Due to the SARS-CoV-2 pandemic, schools have adopted the remote teaching model to continue classes. Thus, the objective of the present research was to verify the working conditions and voice of elementary school teachers in remote teaching.

The female gender was predominant in the present study (71.90%; n=46), similar to that found in the literature (PIZOLATO et al., 2013). It is noteworthy that in women the vocal effort is even more intense, where often, the woman seeks to reconcile professional work with household chores, which can increase the demand of vocal use (LIMA-SILVA et al., 2012).

The age of the teachers ranged from 18 to 67 years, with a mean of 39 years (SD = 9.816). It was noted that there were individuals belonging to the elderly and, according to the literature, voice parameters change over the years and vocal quality changes, which may cause hoarse voice, presence of tremor, vocal fatigue and vocal instability (GAMPEL;CARSCH, 2008).

Regarding the time in the profession, it was found a mean of 14.16 years (SD=9.152) ranging from 0 to 36 years. According to the literature, the average time for the emergence of vocal problems is around 11 years of professional walk and the longer the time of exposure to teaching, the greater the likelihood of arising vocal alterations (XAVIER;SANTOS;SILVA, 2013).

Variable	Elementary school teachers who teach in a remote context	
Daily remote working hours	**n**	**%**
Up to 1h/day	1	1,60
Up to 3h/day	4	6,30
Up to 5h/day	20	31,30
Up to 6h/day	15	23,40
8h or more per day	24	37,50
How many subjects do you teach		
One subject	23	35,90
Two subjects	12	18,80
Three subjects	5	7,80
Four or more subjects	24	37,50
Additional subjects		
No	25	39,10
Yes	39	60,90

Table 1- Characterization of the sample regarding the variable remote workload, number of subjects taught and complementary contents. João Pessoa, 2021.

Source: survey data, 2021.

As shown in table 1, about 37.50% (n=24) of the professionals had a workload of eight hours or more per day, and the majority taught four subjects or more (37.50%; n=24). The excessive workload is related not only to the need to create content to be exposed in synchronous and asynchronous classes in a complementary way (60.90%; n=39), but also to the moment of exposition of the content. Congruent with the exposed data, it is noted that the excessive workload can lead to a decrease in the social well-being of teachers (MARÇAL et al., 2021).

Variable	n	%
Current Work Environment		
The environment is quiet	14	21,90
There is noise, but it is not constant and does not bother me	34	53,10
There is noise, it is constant and it hinders my activities	16	25,00

Table 2 - Characterization of the sample regarding the variable current work environment. João Pessoa, 2021.

Source: survey data, 2021.

Among the vocal risk factors of environmental origin, the literature highlights the presence of noise (LIMA-SILVA et al., 2012). However, in this study, it was observed that 53.10% (n=34) considered that there is noise, but it is not constant and does not hinder their work. Therefore, given the data, it is observed that teachers have self-perception of the presence of noisy agents, but most of them do not perceive it as disturbing their activities. This finding may be related to the adaptations that teachers had to make in their homes to create a suitable environment for teaching remotely, which may have favored the reduction of noisy agents.

Variable	Yes %	No %
Elements considered unfavorable or not in the work environment		
External Noise	70,30	29,70
Dust	6,30	93,80
Humidity	1,60	98,40
Inadequate furniture	35,90	64,10
Lighting	28,10	71,90

Table 3 - Characterization of the sample regarding the elements considered unfavorable or not in the work environment. João Pessoa, 2021.

Source: survey data, 2021.

In the face-to-face modality, an aggravating factor of vocal problems is the existence of dust and humidity in the teachers' workplaces (FREITAS et al., 2019). However, with the new educational construct, Distance Learning (DL), it was noted that only 6.30% of the teachers had problems related to dust and 1.60%, complained about humidity in their workplace, making it clear that these factors are not aggravated by the new situation.

The agent inadequate furniture was not found in the literature as causing some kind of hindrance, however, there is a set of appropriate devices that promote better body posture integrating a coherent speech since the upright posture is the one that has a greater significance in the production of sound (CARNEIRO; TELES, 2012). Congruent to this, as observed in Table 4, most of the teachers (85.90%; n=55) needed to adapt their work environment, and the furniture factor may be included among the adaptations made.

As for the unfavorable factors for voice qualification, it was observed that 70.30% of the teachers said that there is external noise when they are working. This problem, added to excessive voice demand and without adequate vocal conditioning, can promote vocal alterations as observed in the literature (LIMA-SILVA et al., 2012).

Variable	n	%
Performed environment adaptation		
Yes	55	85,90
No	9	14,10
Total	64	100

Table 4- Characterization of the sample regarding the performance of adaptation of environments. João Pessoa, 2021.

Source: survey data, 2021.

With the need to promote social distance, it became necessary the implementation of remote teaching, which resulted in changes in the interaction between individuals and the available infrastructure (FEITOSA et al., 2020). In view of this, in the current research, it was noted that 85.90% (n=55) of the teachers needed to adapt their work environment to continue teaching their classes. These teachers had no previous preparation or training to deal with remote teaching. Thus, they were not able to adapt favorably and comfortably to the new work environment, since noise and inadequate furniture are present factors that interfere with the classes and the teachers' vocal health, as shown in table 3.

Variable	Elementary school teachers who teach in a remote context	
Stressful work rhythm before the pandemic	**n**	**%**
No	7	10,90%
Yes	28	43,80%
Sometimes	29	45,30%
Currently stressful work rhythm		
No	6	9,40%
Yes	44	68,80%
Sometimes	14	21,90%

Table 5- Characterization of the sample regarding the variable stressful work rhythm before the pandemic and stressful work rhythm after the pandemic. João Pessoa, 2021.

Source: survey data, 2021.

With regard to stress, the questioned teachers already believed they had a tiring routine before the Covid-19 pandemic, but it was not recurrent (45.30%; n=29). With the arrival of the pandemic and the changes in the teaching model, this gradient increased, with about 68.80% (n=44) of professionals saying that their work became more stressful. Such data must be taken into account since stress can be a risk factor for the development of vocal disorders in teachers (GIANNINI; LATORRE;FERREIRA, 2016).

Variable	Elementary school teachers who teach in a remote context	
Voice hoarseness and its frequency	**n**	**%**
Never	3	4,70%
Rarely	18	28,10%
Sometimes	35	54,70%
Always	6	9,40%
Don't know	2	3,10%

Table 6- Characterization of the sample according to the variable hoarseness present in the voice and its frequency. João Pessoa, 2021.

Source: survey data, 2021.

Regarding the presence of hoarseness and its frequency, 54.70% (n=35) of the interviewed teachers pointed out that they feel it sometimes. Hoarseness is a voice disorder that can be caused by several factors such as: shouting, gastroesophageal reflux, allergies, humidity, dust, speaking at high intensity for a long time, among others (VIEIRA, 2012). A large part of these professionals do not promote self-care with the voice, so it is necessary that there is awareness of these teachers so they can develop their activities with quality of life and vocal health, during and after the remote teaching model (DA SILVA, 2019).

Variable	Elementary school teachers who teach in a remote context	
Vocal fatigue and its frequency after classes	**n**	**%**
Never	1	1,60%
Rarely	13	20,30%
Sometimes	35	54,70%
Always	11	17,20%
Don't know	4	6,30%

Table 7- Characterization of the sample according to the variable vocal fatigue and its frequency after classes. João Pessoa, 2021.

Source: survey data, 2021.

In relation to vocal fatigue, this is the most frequent symptom in individuals who use their voice occupationally, as is the case of teachers (PENHA et al., 2021). This symptom is more present in women and more common between 20 and 40 years of age. In this research there was a predominance of women, which may justify in part, the appearance and high frequency of this vocal symptom. It is worth noting that there were teachers who reported always feeling vocal fatigue after classes in remote education, so this finding shows that there may be possibility that the teacher already has some vocal pathology installed and

that deserves care (PEIXOTO, 2019).

In general, the development of this research was extremely important, because it is a pioneering study that addresses the working conditions of elementary school teachers in remote teaching, the aspects that may cause interference in the voice and their vocal self-perception. Such findings aim to add scientific data to the literature and bring out richer and more integrated discussions on the subject and, at the same time, inform, prevent and help promote teacher's vocal health. Thus, there is a need for further research in the area that investigates the possible factors that may affect the quality of life, voice, communicative performance and well-being of teachers in the period of remote teaching, as well as the importance of implementing vocal health programs that aim to promote knowledge in voice so that teachers can promote self-care.

4 | CONCLUSION

The present study found that as for the working conditions in remote teaching, elementary school teachers reported an increase in the workload and the elaboration of supplementary content. Moreover, they reported the presence of noise, inadequate furniture to develop their profession and increased stress with the new teaching model. Regarding vocal self-perception, most teachers indicated that the most frequent symptoms are hoarseness and vocal fatigue.

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CAPÍTULO 5

WORKING CONDITIONS AND SELF-PERCEPTION OF VOICE AND EXPRESSIVENESS OF HIGHER EDUCATION TEACHERS IN THE REMOTE CONTEXT

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ABSTRACT: Teacher communication involves voice, speech and body, so any change or imbalance in communication resources can affect the performance of their work. In view of the SARS-CoV-2, the adaptation of environments, the increase in the workload and the presence of noise can be factors that impact the work performance of the teacher. **Objective:** To verify the working conditions and self-perception of voice and expressiveness of higher education teachers in the remote context. **Methods:** Observational, descriptive, cross-sectional, quantitative study. Approved by the Ethics Committee for Research with Human Beings, under CAAE: 10719513.5.0000.5188. 55 professors from higher education, working in remote education, participated. Data were obtained through an online questionnaire containing 47 questions. The propagation of the access link to the questionnaire occurred through social networks. **Results:** It was observed that the work conditions increased workload and the presence of stress in the remote context. Regarding vocal self-perception, it was found that most professors like their voice, consider it pleasant and with adequate intensity, although they expose it at high volume. Regarding expressiveness, it was analyzed that teachers characterize their speech speed as adequate, precise articulation, and that they make use of body and facial expressions. **Conclusion:** It was found that in the remote context, teachers had an increase in workload, as well as the presence of stress. As for the self-perception vocal and expressiveness, it was observed that participants are satisfied with their voice and use facial and body expressive resources during their classes.

KEYWORDS: Working Conditions, Faculty, Education, Distance, Voice.

1 | INTRODUCTION

The teacher is a professional who has the voice as his main work tool. When it comes to occupation, they are considered the most susceptible to the development of voice disorders due to the multiple factors present in their work context (PENHA, 2019).

Regarding the higher education teacher, De Souza Neme and Limongi (2020), conducted a systematic review where they observed that the sickness of university professors happens mainly due to the overload of activities. In addition, it was found that internal and external noise can be considered risk factors for the health of these professionals, affecting their performance in the educational environment.

However, teachers' communication involves voice, speech, and body issues, and depends on how the content is disseminated. And considering the communicative profile of these professionals, it is understood that any vocal alteration or imbalance in communication resources may affect the performance of their work (DE AZEVEDO et al., 2014).

The study by Correira and Servilha (2013) also conducted with university teachers, indicated that they evaluate their professional environment in a more positive way when related to teachers from other levels of education, however, negative points are still highlighted, such as inadequate temperature, issues of tension and stress.

Faced with the SARS-CoV-2 pandemic, several countries have established countermeasures to reduce the spread of the disease, including social distancing. This is a resource that limits contact between infected and non-infected people, contributing to the reduction in the speed of the virus spread (BRAZIL, 2020).

In Brazil, the Ministry of Health has regulated isolation criteria implemented throughout the national territory and, in view of this, several sectors have migrated their work modality to remote. For teachers, remote teaching has become one of the main resources to continue the work exercise, which is often developed at home (BRAZIL, 2020).

The exercise of teaching in the remote context may result in the adaptation of environments, increased workload, presence of external and internal noise, as well as difficulties for the performance of this new teaching modality, considering that teachers in large part, have not received any kind of training (OLIVEIRA; JUNIOR, 2020).

Reflecting on these factors, the following guiding question arose: does remote teaching favor implications for the communicative and work performance of higher education teachers? Given this, this study aims to verify the working conditions and self-perception of the voice and expressiveness of higher education teachers in the remote context.

2 | METHODS

This is an observational, descriptive, cross-sectional, quantitative study. It was approved by the Ethics Committee on Human Research of the institution of origin on May 27, 2021, under process number 091/13, CAAE: 10719513.5.0000.5188.

A total of 55 teachers who work in the public and private education network in Brazil participated in this research. As inclusion criteria, the following were established: teachers of both genders, working in higher education, who were teaching in remote education and who signed the Informed Consent Form (ICF) as per Resolution MS/CNS/CNEP n° 466/12 of December 12, 2012.

Initially, the form presented the TCLE, being in accordance with the recommendations of the National Research Ethics Committee (CONEP), in which the participant could only proceed to the completion of the questions after their acceptance.

To carry out the study an online questionnaire was created through Google Forms, containing 4 sections and 47 questions covering issues related to sociodemographic characteristics, professional performance, synchronous and asynchronous daily workload, working conditions in the remote context, as well as self-perception of communicative and expressive aspects. The dissemination of the link to access the online questionnaire began through WhatsApp and then Instagram.

The data were tabulated and analyzed using descriptive and inferential statistics in the softwareStatisticalPackage for Social Sciences (SPSS, v. 20, IBM, Chicago, IL). Descriptive analysis was performed using measures of central tendency, measures of dispersion, and frequency analysis of the study data. Some data were analyzed by inferential statistics, applying statistical test to verify hypotheses of association through the chi-square test (X2) considering significance level of 5%.

3 | RESULTS AND DISCUSSION

Research around the teacher's voice is often developed, considering that this professional presents high rates of voice disorders (PENHA, 2019). However, in the face of the pandemic scenario of SARS-CoV-2, it is observed that there are no studies in the literature about the expressiveness and working conditions of teachers in remote education. Thus, the present study sought to verify the working conditions and the self-perception of the voice and expressiveness of higher education teachers in the remote context.

In agreement with other studies about the voice of teachers, this study verified the predominance of the female gender, being 70.90% (n=39), which can be explained by historical and cultural issues, where teaching has become a professional career more exercised by women (PENHA et al., 2019; SANTOS; ESPINOSA; MARCONI, 2020).

As for the daily workload of the participating teachers, it was observed that most of them work 8 hours or more per day, corresponding to 43.60% (n=24) of the sample. However, these findings may be related to the performance of synchronous and asynchronous classes and moments for elaboration of content and activities, in addition to the performance of teachers in more than one institution, showing a high workload and, consequently, greater demands in voice and expressiveness (DE SOUZA NEME; LIMONGI, 2020).

Variablel	n	%
Current Work Environment		
The environment is quiet	17	30,90
There is noise, but it is not constant and does not bother me	32	58,20
There is noise, it is constant and it hinders my activities	6	10,90
Total	**55**	**100**

Table 1 - Characterization of the sample regarding the work environment in the face of the HIV pandemic SARS-CoV-2. João Pessoa, 2021.

Source: survey data, 2021.

Noise is one of the harmful agents to vocal health, which is most often reported by teachers (DE SOUZA NEME; LIMONGI, 2020). In classroom teaching, studies show that noise is evidenced as one of the main complaints of teachers (SILVA, 2021). However, among the findings of this study, presented in Table 1, it was found that 58.20% (n=32) characterized that in their work environment in the remote context there is noise, but it is not constant and does not disturb, while 30.90% (n=17) indicated their work environment as quiet and 10.90% (n=6) pointed out that there is noise, it is constant and hinders the performance of activities. Therefore, it is understood that most professionals do not live with this factor, and this may go against the realization of adaptations in their work environment because of remote learning.

Variable	n	%
Have you adapted environments?		
Yes	42	76,40
No	13	23,60
Total	**55**	**100**

Table 2 - Characterization of the sample regarding adaptations made at home by teachers in the face of the HIV pandemic SARS-CoV-2. João Pessoa, 2021.

Source: survey data, 2021.

To give continuity to the exercise of their function, being in the remote context, 76.40% (n=42) of the teachers made adaptations in their homes, as observed in table 2. Such changes may have been made due to the need for a comfortable and reserved environment from the other rooms. This information is important, since most of the teachers report a heavy workload and, consequently, this is an environment where they spend most of their time. In addition, environmental modifications can help curb situations of imbalance in the physical health of these professionals, as well as triggers of stress (FERNANDES; VANDENBERGUE, 2018).

Variable	Yes %	No %	Sometimes %	Total %
Rhythm of work				
Before the pandemic, was the pace of work stressful?	49,10	16,40	34,50	100
In the face of the pandemic, is the pace of work stressful?	65,50	16,40	18,20	100

Table 3 - Characterization of the sample regarding the rhythm of work before and after the pandemic SARS-CoV-2. João Pessoa, 2021.

Source: survey data, 2021.

The unfavorable conditions in the educational environment are considered relevant to the favoring of stress in teachers (FERNANDES; VANDENBERGUE, 2018). According to the findings of table 3 it was observed that 49.10% (n=27) considered that the pace of work was stressful before the pandemic, 34.50% (n=19) indicated that sometimes, and 16.40% (n=9) did not consider it stressful. Before SARS-CoV-2, 65.50% (n=36) of the teachers pointed out the presence of stress in the rhythm of their work. Thus, it is understood that there was an increase in the number of teachers who consider the pace of work stressful. These results may be related to the fact that teachers are socially isolated, with the existence of concerns about socioeconomic uncertainties, with the fear of contamination by Covid-19 and with the new adaptations to technology (OLIVEIRA; JUNIOR, 2020). It can also be considered that70.90% (n=39) of the teachers in the research are female, and culturally, it is understood that women are more susceptible to the accumulation of activities in their homes (PENHA, 2019).

Variable	n	%
Do you like your voice?		
Yes	45	81,80
No	10	18,20
How would you rate your voice?		
Pleasant	31	56,40
Unpleasant	2	3,60
Never thought about it	22	40,00
How would you define the volume of your voice?		
High	27	49,10
Appropriate	24	43,60
Low	4	7,30
How do you define the intensity of your voice?		
Strong	22	40,00
Adequate	29	52,70
Weak	4	7,30

Table 4 - Characterization of the sample regarding vocal self-perception. João Pessoa, 2021.

Source: survey data, 2021.

Self-perception is considered subjective, however, it is a resource widely used to understand the sensitivity of the subject about his voice, knowing that greater awareness and vocal knowledge are relevant to identify signs and symptoms of a possible illness (PAULA, 2019).

In view of this, information about the teachers' vocal self-perception, exposed in table 4 points out that, of the 55 study participants, 81.80% (n=45) like their voice and 53.40% (n=31) classify it as pleasant. This factor may be related to the time of professional use of the voice, making teachers more adapted to their vocal characteristics. Therefore, it appears that teachers were satisfied with their voices, and that these may be meeting their personal and professional demands (ANHAIA et al., 2015).

Regarding the self-perception of voice volume 49.10% (n=27) of teachers consider it as high, and this finding may be evidenced due to personality issues. As for vocal intensity, it was analyzed that 52.70% (n=29) perceived it as adequate. This is in accordance with the literature, because this resource is often used to get the student's attention (SERVILHA; DA SILVA MONTEIRO, 2007). In the remote context it is not so attractive, since the interaction usually happens through chats and in moments after the lecture class.

Variable	n	%
How do you define your speaking speed?		
Fast	24	43,60
Appropriate	30	54,50
Slow	1	1,80
How do you define your speaking articulation?		
Precise	44	80,00
Imprecise	19	18,20
Exaggerated	1	1,80
Do you use body expressions in your classes?		
Never	8	14,50
Rarely	3	5,50
Sometimes	16	29,10
Always	27	49,10
Don't know	1	1,80
Do you use facial expressions in your classes?		
Rarely	3	5,50
Sometimes	15	27,30
Always	36	65,50
Don't know	1	1,80

Table 5 - Characterization of the sample regarding the self-perception of expressiveness. João Pessoa, 2021.

Source: survey data, 2021.

Table 5 shows that 54.50% (n=30) of the teachers considered their speech rate to be adequate. As for the articulation of speech, 80.00% (n=44) of teachers characterized it as accurate, and this is an interesting finding, because the articulatory accuracy assists in understanding the message and consequently in the communicative performance of the teacher (ROMANO et al., 2011).With regard to body expressions 49.10% (n=27) of these said they always use, and data on the use of facial expressions identified that 65.50% (n=36) of participants ensure always employ this attribute during classes. The data, therefore, prove to be positive since the use of expressive resources is relevant to classroom management (ROMANO et al., 2011; DE AZEVEDO et al., 2014).

It was possible to observe that the fact that students asked the teacher to repeat the content taught was not related to the self-perception of the teacher regarding the volume of his voice (p=0.966) or intensity of it (p=0.991), nor to the speed of speech (p=0.936). Other reasons not related to the vocal dynamics of the professor could explain this type of request by the student, such as, for example, the complexity of the content being taught or even the discontinuity of the audio in the synchronous class due to internet connection problems.

Variable	n	%
Have you received training on voice and/or expressiveness?		
Yes	16	29,10
No	39	70,90
Total	55	100

Table 6 - Characterization of the sample regarding participation in voice and/or expressiveness training. João Pessoa, 2021.

Source: survey data, 2021.

When asked about participation in programs or training on voice and/or expressiveness, 70.90% (n=39) indicated that they did not receive any kind of guidance, as shown in table 6. These data reflect the few actions to raise awareness and offer knowledge about important aspects for the communicative performance of these professionals, from academic training to teaching practice (PENHA, 2019).

Given the data found throughout the research, it can be seen that, as in the face-to-face, the remote context can provide higher education teachers with several factors that can culminate in voice illness and harm their communicative performance. Among these factors, there is greater evidence of the presence of stress and the high workload.

Considering the unexpected context of remote teaching due to the SARS-CoV-2 pandemic, the research proved to be relevant, since it is a theme that is little found in the literature. Through the findings, we observed the importance of new studies that seek to understand the remote work context of higher education teachers, as well as the relevance of offering training and guidance that can encourage and help them to create a favorable environment for their work. Developing also, new knowledge in voice and expressiveness in order to make them aware of such important aspects in the execution of their work functions.

4 | CONCLUSION

From the results, it was observed in terms of working conditions, higher education teachers reported an increase in the workload, as well as the presence of stress in the new work context. Regarding vocal self-perception, they indicated that they like their voice, consider it pleasant and with adequate intensity, although most teachers characterize it with a high volume. Regarding the self-perception of expressiveness, it was identified that the participants characterize their speech rate as adequate, precise articulation and that they make use of facial and body expressions during their classes.

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CAPÍTULO 6

RELATIONSHIP BETWEEN VOCAL USE AND SELF-REPORTED BODILY PAIN BY TEACHERS

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ABSTRACT: The teacher is the most investigated voice professional in speech therapy and in the area of voice, as he belongs to the group with the greatest risk for the development of vocal disorders. **Objective:** To verify the symptoms of vocal disorders and body aches self-reported by teachers from the municipal network of João Pessoa. **Methods:** This is an observational, descriptive, cross-sectional and quantitative study, approved by the Ethics Committee for Research with Human Beings of the institution of origin, under CAAE: 10719513.5.0000.5188. Twenty-one elementary school teachers of both sexes participated in the research. The teachers answered the Vocal Production Condition - Teacher, Voice Disorder Screening Index questionnaires and the Body Pain and Vocal Condition in Professional Practice questionnaire. All data were analyzed descriptively. **Results:** The most reported vocal symptoms were: dry throat, dry cough, hoarseness, voice failure and tiredness when speaking. The most frequent bodily pains were headache, neck pain and throat pain. **Conclusion:** There was a high number of teachers with vocal symptoms and complaints of bodily pain. This finding may be related to their work activity.

KEYWORDS: Voice, Faculty, Voice disorders, Working conditions.

1 | INTRODUCTION

The voice is one of the aspects that reflect the personal characteristics of an individual, and considered as an important element to develop communication (LEMOS; MARCHAND; CASSOL, 2015). Individuals who use it as a work tool are called voice professionals, such as singers, actors, radio announcers, teleoperators and teachers, the latter belonging to the group with higher risk for the development of voice disorders (ROY et al., 2004; RODRIGUES; BEHLAU, 2011; LIMA-SILVA et al., 2012).

The Ministry of Health classifies the Work-Related Voice Disorder (WRVD) as “any form of vocal deviation related to professional activity that diminishes, compromises or impedes the worker’s performance or communication, and

there may or may not be organic alteration of the larynx" (MINISTRY OF HEALTH, 2018). And thinking about teachers as voice professionals, they are susceptible to such disorders, which bring with them not only purely vocal issues, but limitations in vocal expression, emotional impact, caused by stress and anxiety, and socioeconomic impact, which puts at risk the career and survival of the worker (LIMA-SILVA et al., 2012; MINISTRY OF HEALTH, 2018).

Among the habits most performed among teachers during their professional activity, it stands out teaching standing or sitting uncomfortably, moving when using the blackboard to write, besides the frequent standing position inside the room, and it is known that all this if performed with improper postures, can harm the musculoskeletal structure, collaborating with the emergence of symptoms in some body regions, emerging then the presence of pain, which is a symptom often reported by voice professionals. Such symptoms can have a negative impact on the development of their work, limit their professional activity and interfere with their quality of life, as well as their well-being and health (CONSTANCIO et al., 2012).

Still in relation to the muscular effort performed by teachers, the Ministry of Health (2012) when treating Work-Related Musculoskeletal Disorders (WMSD), states that work performed in a fixed position or with repetitive movements, especially of the upper limbs, lack of post-contraction recovery and fatigue (lack of time flexibility, high pace of work) are the main inducers of neuromuscular fatigue. Musculoskeletal pain is a known consequence of repetitive strain, overuse and work-related musculoskeletal disorders, and is considered one of the biggest health problems in the modern world (CONSTANCIO et al., 2012).

According to Silverio et al. (2014), some types of functional and organofunctional dysphonias may be associated with muscular alterations that cause body discomfort, especially pain in the cervical region. In view of this, turning attention to the teacher's vocal health is of utmost importance.

According to the above, identifying possible body pain and self-reported vocal symptoms of teachers will allow us to understand the relationship between them, so that we can obtain a multidimensional diagnosis of vocal quality more accurately and earlier. Thus, the aim of this research was to verify the symptoms of vocal disorders and the body pains self-reported by teachers from the municipal network of João Pessoa.

2 | MÉTHODS

This is an observational, descriptive, cross-sectional, quantitative study. It was approved by the Ethics Committee for Research with Human Beings of the institution of origin on May 27, 2021, under process number 091/13 (CAAE: 10719513.5.0000.5188).

All teachers involved in the research signed the Informed Consent Form (TCLE), thus allowing the realization and dissemination of this research and its results, according to Resolution MS/CNS/CNEP No. 466/12 of December 12, 2012.

The sample was selected by convenience and composed of 21 elementary school teachers belonging to the public network of João Pessoa- PB, which were submitted to the completion of the protocol Vocal Production Condition - Teacher (CPV-P), the questionnaire Screening Index of Voice Disorder (IDTV) and the questionnaire Body Pain and Vocal Condition in Professional Practice.

The protocol Vocal Production Condition - Teacher (CPV-P) was created by Ferreira et al. (2007), and aims at characterizing the vocal profile and the general health of teachers, as well as investigating the working conditions in schools, from the teachers' point of view. This instrument includes the dimensions: subject identification, functional situation, work environment, work organization, vocal aspects, habits and lifestyle. However, for this study, the data on the identification and functional situation of the teachers were investigated.

The Voice Disorder Screening Index (VDI) questionnaire was developed by Ghirardi et al. (2013) and its use must assist in mapping teacher voice disorder. The instrument is validated and features 12 vocal symptoms. The participant must mark how often he or she presents such symptoms: "never," "rarely," "sometimes," or "always." Each score in the "sometimes" or "always" categories represents one point. The total score of the ITDV is calculated by simply adding up the points obtained. Values equal to or higher than five suggest the presence of a voice disorder, and the teacher must be referred to a specialized service.

The questionnaire Body Pain and Vocal Condition in Professional Practice was developed by Constancio et al. (2012), has 14 questions related to the presence and intensity of body pains, the length of time working as a teacher, consultations with an otorhinolaryngologist or speech therapist due to vocal problems, and how they rate their own voice.

The data obtained were tabulated in Microsoft Office Excel (2016 version) and descriptive analysis of the data was performed.

3 | RESULTS AND DISCUSSION

The teacher belongs to the category of communication professionals who use the voice as a working tool. However, they are subject to develop or worsen a vocal disorder due to multifactors present in the work context, for example, the presence of body pains (MINISTRY OF HEALTH, 2018). In this sense, the objective of this research was to verify the symptoms of vocal disorders and body pains self-reported by teachers of the municipal network of João Pessoa.

Twenty-one teachers participated in this study being mostly female (80.95%; n=17), a finding similar to other studies with elementary school teachers (LIMA-SILVA et al., 2012; MENDES et al., 2016; PENHA et al., 2019). According to the Ministry of Education (2018), through the School Census, the high number of women in education may be related to the cultural and historical issue, in which teaching has become a career practiced by a significant number of women.

The mean age found was 41.47 years (SD=9.13) and, according to the literature (BEHLAU, 2001), the age range between 25 and 45 years is considered the period of greater vocal efficiency. However, with advancing age, structural changes in the larynx can occur, with greater or lesser vocal impact (FERREIRA et al., 2008; MORAIS et al., 2012). The teachers in this study were near the end of the vocal efficiency period, which may justify in part, the high self-reported vocal complaints identified.

Regarding the workload, it was found a predominance between 10 to 20 hours (38.10%; n=8), a number found in other similar studies that relate voice and teaching activity (MENDES et al., 2016; LIMA-SILVA; ANJOS; MOREIRA, 2017). The document released by the Ministry of Health, Work-Related Voice Disorders (WRD), describes that excessive workload is one of the main factors associated with voice disorder in teachers (MINISTRY OF HEALTH, 2018). Thus, the workload is a risk factor for vocal disorders in teachers.

From the analysis of the questionnaire Vocal Condition and Body Pain During Professional Exercise (Table 1), it is possible to observe that in the sample studied, 80.95% (n=17) have already experienced vocal problems during professional exercise and 42.86% (n=9) have already needed to take time off work due to voice problems. The presence of voice disorder in teachers can cause several impacts both professionally and personally. In addition, it will imply financially by the need for replacement of the teacher in schools, as well as the high cost of treatment services (MINISTRY OF HEALTH, 2018).

It was observed that only 19.05% (n=4) of teachers have consulted an otorhinolaryngologist and none of them have sought a speech therapist. This fact reveals the need for the insertion of the speech therapist in the school environment and also shows the lack of knowledge on the part of teachers about this professional and how much it can help them in voice care.

Regarding the classification of their voice, 42.85% (n=9) referred it as good and 33.33% (n=7) as reasonable (Table 1). Even though most teachers have classified their voice as good, the presence of the speech therapist in schools becomes indispensable because it will promote actions of promotion, prevention and monitoring of vocal health, as well as work the self-perception of the voice so that they can better identify the existence of vocal disorders (ALMEIDA et al., 2012; PENHA et al., 2021).

Questions from the questionnaire Vocal Condition and Body Pain during Professional Exercise	n	%
Have you ever experienced vocal problems during your professional practice?		
Yes	17	80,95
No	4	19,05
Have you ever had to take time off from your work due to voice problems?		
Yes	9	42,86
No	12	57,14
Have you ever seen an otorhinolaryngologist due to voice problems?		
Yes	4	19,05
No	17	80,95
Have you ever consulted a speech therapist because of voice problems?		
No	21	100
How would you rate your voice?		
Great	1	4,76
Good	9	42,85
Fair	7	33,33
Bad	3	14,28
Very bad	1	4,76

Table 1 - Questions from the questionnaire Vocal Condition and Body Pain During Professional Exercise. João Pessoa, 2019.

Source: survey data, 2019.

Regarding the frequency of complaints of body pain symptoms, it was possible to identify: sore throat 61.90% (n=13), neck pain 57.10% (n=12) and headache 52.30% (n=11), with most of these symptoms referred by teachers as “sometimes” (Table 2). A study conducted with 12 public school teachers identified that the biggest complaints of body aches were in the spine and throat, being these findings similar to the present research (ALMEIDA et al., 2012). Such information points to the need for comprehensive, intersectoral and interdisciplinary actions, in order to prevent, detect early and intervene in speech and hearing disorders, as well as physiotherapy characteristic of the teaching profession.

Localization of body pain	Never		Sometimes		Many Times		Almost always		Always	
	n	%	n	%	n	%	N	%	n	%
Headaches	7	33,30	11	52,30	2	9,50	1	4,70	0	0,00
TMJ/jaw pain	14	66,60	7	33,30	0	0,00	0	0,00	0	0,00
Tongue pain	19	90,40	1	4,70	1	4,70	0	0,00	0	0,00
Sore throat	3	14,20	13	61,90	3	14,20	1	4,70	1	4,70
Back of the neck pain	9	42,80	9	42,80	2	9,50	1	4,70	0	0,00
Muster pain	6	28,50	9	42,80	2	9,50	4	19,00	0	0,00
Back/spinal pain	2	9,50	8	38,00	6	28,50	2	9,50	3	14,20
Pain in the neck	4	19,00	12	57,10	3	14,20	1	4,70	1	4,70
Chest pain	12	57,10	5	23,80	2	9,50	2	9,50	0	0,00
Pain in the arms	8	38,00	9	42,80	2	9,50	2	9,50	0	0,00
Pain in the hands	11	52,30	7	33,30	2	9,50	1	4,70	0	0,00
Ear pain	13	61,90	6	28,50	1	4,70	1	4,70	0	0,00
Pain when speaking	10	47,60	7	33,30	2	9,50	2	9,50	0	0,00

Table 2 – Frequency of teachers' self-reported bodily pain. João Pessoa, 2019.

Source: survey data, 2019.

Regarding the instrument ITDV, the mean of teachers was 5.47 symptoms and the most frequent were: dry throat (66.67%; n=14), dry cough (61.90%; n=13), hoarseness, voice failure and tiredness when speaking with 57.14% (n=12) (Table 3). Such symptoms found are the most common in teachers with voice disorder as reported in other studies (LIMA-SILVA et al., 2012; LIMA-SILVA; ANJOS; MOREIRA, 2017; PENHA et al., 2021).

A study developed by Paiva, Ferreira and Lima-Silva (2016), aimed to describe the vocal profile, vocal symptoms and their possible causes in 151 public school teachers in the municipality of João Pessoa - PB. When checking the presence of vocal symptoms of dry throat, hawking and fatigue when speaking, teachers pointed out as possible causes the intensive use of voice, stress and the presence of allergies. Therefore, the teachers in this study may also be exposed to risk factors of environmental, organizational and individual origin, which negatively affect the health and quality of life of this professional.

Vocal symptoms	n(%)
Hoarseness	12 (57,14%)
Loss of voice	5 (23,81%)
Voice cracking	12 (57,14%)
Thick voice	8 (38,10%)
Coughing	10 (47,62%)
Dry cough	13 (61,90%)
Coughing with secretion	6 (28,70%)
Pain when speaking	8 (38,10%)
Pain when swallowing	7 (33,33%)
Throat secretion	8 (38,10%)
Dry throat	14 (66,67%)
Tiredness when speaking	12 (57,12%)

Table 3 - Frequency and percentage of the presence of vocal symptoms self-reported by teachers. João Pessoa, 2019.

Source: survey data, 2019.

The data from the present research revealed a high incidence of vocal symptoms and body pain in the teachers studied. Such findings, reinforce the need for changes in working conditions within schools, as well as actions that not only aim at improvements in vocal health care for teachers, but also in physical and psychological conditions, providing health and general well-being to the worker.

4 I CONCLUSION

It was found a high number of teachers with vocal symptoms, mainly, dry throat, dry cough, hoarseness, voice failure and tiredness when speaking. In addition, it was observed that teachers complained of body aches and pains in the throat, neck and head, probably as a result of their work activity.

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CAPÍTULO 7

PERCEPTUAL ASPECTS OF THE SPEECH EXPRESSIVITY OF TELEOPERATORS IN AN EMERGENCY CALL CENTER

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ABSTRACT: Emergency telemarketers are professionals subject to situations of stress, irritation and anxiety. Therefore, it is essential a speech therapy performance in relation to their expressiveness, knowing that this is an important attribute for effective communication. **Objective:** The study sought to analyze perceptual aspects of the speech expressiveness of telemarketers at an emergency call center. **Method:** The study is observational, cross-sectional, descriptive and quantitative. It was approved by the Ethics Committee for Research with Human Beings, under process 0532/14. Nine vocal samples were selected, following the eligibility criteria. Afterwards, the samples were sent to an experienced judge in the VPAS-PB script. Then all data were submitted to statistical analysis. **Results:** There was a predominance of vocal quality adjustments, such as: decreased lips extension, closed jaw, lowered tongue body, decreased tongue body, lowered larynx and modal voice. As for vocal dynamics, there were: decreased pitch variability and fast speech rate. Teleoperator 4 (T4) presented the adjustments for decreased lip extension (grade 5), closed jaw (grade 5), increased pitch and loudness variability (grade 4) and rapid speech rate (grade 5). T8 has closed jaw adjustment (grade 5), decreased tongue body extension (grade 5) and rapid speech rate (grade 5). T1, T2, T3, T5 and T9 showed some adjustments to a moderate degree, from 1 to 3. T6 presented a closed jaw adjustment (grade 5) and T7: lowered larynx (grade 5) and lowered usual pitch (grade 5). **Conclusion:** It was found that most of the adjustments identified are inadequate and may favor the development of voice disorders.

KEYWORDS: Voice, Voice quality, Occupational Health, Advertising.

1 | INTRODUCTION

The voice professional is the individual who depends on certain production and / or specific vocal quality for their professional survival (BEHLAU, 2005). Among the voice professionals, we highlight the telemarketer, a category that is on the rise, since telemarketing companies are among the largest employers in the country (NOGUEIRA, 2009). These workers employ the call answering system using the telephone as the only form of contact, and thus, they present only verbal communication as a way to represent the company they work for, which can be in the commercial or care area (ANDRADE; AZEVEDO, 2006).

In the assistance category are the teleoperators who answer emergency calls (ANDRADE; AZEVEDO, 2006), which consists of: firefighters, civil and military police officers who, through their information, pass on orientations that involve life-threatening situations (ALENCAR et al., 2019).

According to Silva et al. (2006), these professionals go through situations of irritation, stress and anxiety, requiring emotional self-control, to be able to deal with often difficult personal demands. Because of this, it was seen that it is essential to invest in expressiveness, knowing that verbal communication is the only possible at that moment and the quality of the teleoperator's work depends, most of the time, on these two aspects: voice and expressiveness.

From a phonoaudiological point of view, working with expressiveness requires the integration of verbal expressiveness (textual content) with vocal resources (vocal quality, voice types, vocal parameters and resources such as: pitch, loudness, speed, articulation, resonance, modulation, pneumophonoarticulatory coordination) en non-verbal (postures, positions, movements, dislocations, dances, gestures, looks, facial and articulatory expressions; head shaking, physical appearance and clothing) and all these aspects reflect on the effects of communication (COTES; KYRILLOS, 2011; PENTEADO; PECHULA, 2017).

This work aims to analyze perceptual aspects of the speech expressiveness of teleoperators of an emergency call center, using the adaptation to Brazilian Portuguese of the Vocal Profile AnalysisScheme (VPAS-PB) (CAMARGO; MADUREIRA, 2008).

2 | METHODS

The present study is observational, descriptive, cross-sectional, and quantiqualitative in nature. It was approved by the Ethics Committee on Human Research of the institution of origin, under the process number 0532/14 (CAEE: 36516514.0.0000.5188) approved on May 28, 2021. It was carried out from the selection of nine voices from a bank of calls from emergency teleoperators working at the Integrated Police Operations Center (CIOP). This

institution belongs to a public agency, where firemen, civilian and military police officers work as teleoperators. These professionals answer emergency calls in the metropolitan region of João Pessoa.

The teleoperators selected fit the following eligibility criteria: being male; having worked in the field for at least three months; not being away from their jobs and not being under speech therapy; not having cognitive, auditory and/or neurological problems that somehow hinder their communication.

The samples were taken from the database after permission was given by the institution, and then edited so that only the voice of the teleoperator remained, without interruptions. In addition, 20% of the sample was repeated to analyze the reliability of the judgments.

Subsequently, the samples were given, via Google Drive, to an experienced judge in the Vocal Profile Analysis Scheme (VPAS-PB) (CAMARGO; MADUREIRA, 2008), a protocol in which it is possible to analyze perceptual-auditory issues of voice and expressiveness of teleoperators. This version is an adaptation of VPASwritten by Laveret al. (1981).

Through this script we analyze the set of factors that contribute to the quality of communication, such as vocal quality and dynamics adjustments. Vocal quality is characterized by the behavior of the combination of supralaryngeal (articulatory: phonoarticulatory organs), laryngeal (phonatory: phonation mode; laryngeal friction and laryngeal irregularity) and muscular tension adjustments.

And as for prosodic elements of vocal dynamics, the VPAS-PB evaluates prosodic elements such as: pitch (habitual, extension and variability), loudness (habitual, extension and variability), tempo (interrupted continuity), elocution rate (fast or slow). And other elements such as breath support (adequate, inadequate and present).

To measure quantitatively, the script counts on a scale that evaluates the aspects in six grades (from 1 to 6), considering the use of inadequate adjustments by moderate grade when scored 1, 2, and 3, and by extreme grade when scored 4, 5, and 6. This measurement is based on the idea that an unaltered voice uses neutral adjustments.

Data analysis was performed by a judge experienced in handling the VPAS-PB script, later described in a table and analyzed qualitatively.

3 | RESULTS AND DISCUSSION

Some items were included for the voice samples, 9 calls that had at least 20 seconds of speech only from the teleoperator, without overlapping other voices. Thus, all participants were male, with an average age of 39.9 years, with a workload of 12 hours a day. It was verified a predominance of vocal quality adjustments such as decreased lip extension, closed

jaw, lowered tongue body, lowered larynx and modal voice. And as for vocal dynamics, we observed: decreased pitch variability and fast elocution rate.

Among the whole sample, the individuals who presented higher grades of adjustments were: Teleoperator 4 (T4) had the adjustments of decreased lip extension (grade 5), closed jaw (grade 5), pitch variability and increased loudness (grade 4) and fast elocution rate (grade 5). T8 has closed jaw setting (grade 5), decreased tongue body extension (grade 5) and rapid elocution rate (grade 5). T1, T2, T3, T5 and T9 showed some moderate degree of adjustment, from grade 1 to 3. T6 had a closed jaw (grade 5) and T7: lowered larynx (grade 5) and lowered pitchhabitual (grade 5).

The table below shows all the adjustments of teleoperators according to their grades.

		T1	T2	T3	T4	T5	T6	T7	T8	T9
Ajustes de qualidade vocal	Lábios extensão diminuída									
	Mandíbula fechada									
	Ponta de língua avançada									
	Corpo de língua abaixado									
	Corpo de língua recuado									
	Corpo de língua extensão diminuída			(i)						
	Denasal									
	Laringe elevada									
	Laringe abaixada									
	Hiperfunção Laríngea									
	Voz modal	P			P	P	P	P	P	P
	Voz crepitante	(i)								
	Voz áspera									
	Escape de ar		P	P						P
Aspectos de dinâmica vocal	*Pitch* habitual elevado									
	Pitch habitual abaixado									
	Variabilidade de *pitch* diminuído									
	Variabilidade de *pitch* aumentado									
	Loudness habitual diminuído									
	Loudness habitual aumentado									
	Variabilidade de *loudness* aumentado				(i)					
	Variabilidade de *loudness* diminuída									
	Continuidade interrompida	(i)		(i)						
	Taxa de elocução rápida									

Legenda:	Intermitente (i)	Presente P (sem graduação)	Ausência do ajuste	1-2 grau	2,1-3 grau	3,1-4 grau	> 4 grau

Table 1. Occurrence of vocal quality and vocal dynamics adjustments by means of the VPAS-PB script found in the nine vocal samples of emergency teleoperators.

Source: survey data, 2020.

The perceptual-auditory analysis of the voices showed that, predominantly, the professionals have some quality adjustment and vocal dynamics from moderate to extreme, corroborating the literature, which mentions the presence of these adjustments and states that they bring overload to the speech apparatus (MEDEIROS, 2019).

It was verified a predominance of vocal quality adjustments such as: decreased lip extension, closed jaw, lowered and retracted tongue body, lowered larynx and modal voice. And as for vocal dynamics, we observed: decreased pitch variability and fast elocution rate.

The population of this study consists of male public servants (policemen and firemen). This fact explains the high frequency of the lowered larynx setting in the results, since the male larynx is in a lower vertical position than the female larynx and its vocal folds are larger and wider (BRAZIL, 2005; BEBER, 2011). The low larynx allows an expansion of the total extension of the vocal tract and this causes a decrease in the frequency of acoustic formants, especially the lower ones, favoring the reduction of pitch (LIMA, 2007).

According to the literature, pitch is the psychophysical sensation of the frequency of a sound, which allows us to classify it in low or high pitch. From this, we can see that the variation in vocal frequency, for Boone (1996) is an element of identification of the speaker, which provides not only the presentation of the subject's unique characteristics, but also the communicative intention during speech.

Through the findings regarding the aspects of vocal dynamics of the sample, it is clear that the pitch variability decreased was a recurrent element in teleoperators participating in the study. This decrease in pitch variability can negatively impact the communication of these teleoperators, since through these prosodic parameters it is possible to express emotion and this monotonicity in speech can cause the listener the impression that the teleoperator is disinterested in solving their problem (MEDEIROS, 2019).

The habitual pitch refers to the frequency that the individual generally uses in their speaking moments. In this research, habitual pitch of most teleoperators presented lowered, affirming the data exposed in the previous paragraphs and corroborating with Titze (1997) and Tom et al. (2001), who found a relationship of low pitch with lowered laryngeal adjustment. These results may be related to the fact that lower pitched voices tend to provide a more pleasant and secure appearance to the listener (CAMPOS; SALGADO, 2010).

One of the most present adjustments (occurred in five of the nine teleoperators), with higher grades and that most impacted the voice quality and expressiveness of the teleoperator was the closed jaw adjustment. This criterion interferes with expressiveness, since the articulation of sounds is distorted, interfering with the transmission of the message (BEHLAU, 2005).

As for vocal dynamics, a striking feature in teleoperators investigated was the rate of rapid elocution, six teleoperators presented this setting to a considerable degree, in some reaching even an extreme level. Such a fact was also found in the speech of emergency room teleoperators in the study by Medeiros (2019).

The elocution rate refers to the number of linguistic units present in a speech interval divided by the length of the interval, and can be measured both globally and locally

(GONÇALVES, 2013). Only a small part of the sample presented a high degree regarding high elocution rate, individual aspects and the environment are relevant parameters and high elocution rate is more adaptable to an emergency call center, as is the case of CIOP (MOREIRA-FERREIRA, 2005). However, the elocution rate of these workers must be fast, but in moderate degree, because for the problem to be solved quickly it is important that the worker's speech can be easily understood by the listener.

Regarding tongue position, it is known that the configuration of the tongue is one of the main aspects that dictate the characteristics of the supraglottic vocal tract (LIMA, 2007). Studies state that receding the tongue body is a strategy for the enlargement of the resonance cavities to happen, and this adjustment directly impacts expressivity (MEDEIROS, 2019). The findings of this research point to a minority of teleoperators with advanced tongue tip (T1, T2, and T3), but a majority with lowered and/or recessed tongue body adjustments.

The compatibility principle of the Phonetic Model of Vocal Quality Description ensures that one adjustment, by antagonism, can exclude the execution of the other (LIMA-SILVA et al., 2017; MEDEIROS, 2019). Affirming this principle, it was also found that most of the teleoperators who showed some tongue adjustment also presented of lowered larynx (T1, T4, T6, T7 and T8), which demonstrates the relationship between the tongue and larynx, since the former when moved, greatly influences the volume of the oral cavity and laryngeal movements (OLIVEIRA, 2004).

It is seen in the literature that to obtain a softer and more comfortable emission, the speaker uses low laryngeal adjustments and less mobile lips (CAMARGO, 2002; VILARIM, 2003; BRAZIL, 2005), which can be observed in most of the teleoperators analyzed (T1, T4, T5, T6, T7 and T8) and agreeing with Pittam (1994) who shows this relationship between tongue and larynx, it can be noticed that most teleoperators who have advanced tongue tip do not present lowered larynx, since they are incompatible adjustments according to Laver's theory (1980).

Analyzing the vocal quality, it was seen that the most frequent and highest graded adjustments were the closed jaw (with grade 5), and decreased extension tongue body (most in grade 4). And as for vocal dynamics, it was possible to notice: fast elocution rate (recurrent grade 5), decreased habitual pitch, increased pitch variability (most in grade 4).

Laver (1980) states that there is a possibility of vocal quality alteration in the speaker and it can be perceived through this script. So all the non-neutral adjustments mentioned may be related to some dysphonia, which can interfere with the teleoperator's expressiveness.

It was verified that most of the identified adjustments (elevated larynx, closed jaw, and elevated elocution rate) can favor the development of voice disorders, since they are usually used by the speaker, generating overload of the phonatory apparatus (LIMA-SILVA, 2012; SANTOS et al., 2016; MEDEIROS, 2019) and culminating in the difficulty of expressiveness

when exercising their function as an emergency teleoperator. Thus, it is possible to observe the importance of investigating the aspects that interfere with good communication and expressiveness of this professional.

4 | CONCLUSION

Through the VPAS-PB we detected speech expressivity adjustments (vocal quality and dynamics) that may be compromising the intention and meaning of the message transmitted by teleoperators and also the quality of the service provided by them. It was found that most of the adjustments identified may favor the development of voice disorders.

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CAPÍTULO 8

RELATIONSHIP BETWEEN PERCEPTUAL PARAMETERS AND THE PLEASANTNESS OF THE VOICE OF TELEMARKETERS AT AN EMERGENCY CALL CENTER

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ABSTRACT: In emergency call centers in some Brazilian cities, professionals are generally firefighters and police. The auditory impression of telemarketers' voices perceived by service users can be admitted in aspects of vocal pleasantness and related to data from the Vocal Profile Analysis Scheme, adapted (*VPAS*-PB). **Objective:** to analyze whether there is a relationship between the auditory-perceptual aspects of vocal quality and dynamics and the findings of the voice pleasantness analysis of emergency call center operators. Methods: Observational, descriptive, cross-sectional, quantitative and qualitative study. Nine voice samples of telemarketers extracted from the calls of the calls from an emergency center were selected. Voice pleasantness data came from 24 lay judges who used a semantic differential scale, while the samples were also evaluated using the VPAS-PB script by a judge experienced in the application. All data were subjected to statistical analysis. **Results:** The voice that received the most negative impressions was that of the teleoperator T4 and, according to the VPAS-PB assessment: T4 has adjustments in lips extension decreased (grade 4), jaw closed (grade 5), decreased pitch variability and increased loudness (grade 4) and rapid speech rate (grade 5). T2 and T3: Only positive adjectives and showed most adjustments to a moderate degree. **Conclusion:** There was a relationship between the perceptual aspects of vocal quality and dynamics and the findings of the voice pleasantness analysis of emergency call center operators.

KEYWORDS: Emergency Medical Services, Voice, Speech, Language and Hearing Sciences, Auditory Perception.

1 | INTRODUCTION

In the emergency call center, the professionals in general are firemen and policemen, and do not receive any training or instruction before joining the service, except for the area itself (FERREIRA et al., 2008). The emergency call operators live in a very stressful situation, receiving numerous calls daily. They are constantly exposed to risk factors that can cause damage in various areas, being more common, by excessive use of the voice, the development of dysphonia or vocal disorders, which may significantly compromise their professional performance (AMORIM et al., 2011).

The voice being endowed with great significance, carries intrinsic and individual characteristics, they are the ones that from the perception of the listener, can describe this acceptance according to the positive or negative response that the voice can generate (YAMASAKI; BEHLAU, 2001). Such characteristics can be best described through a perceptual-auditory evaluation that involves the analysis of the parameters used by the individual in his vocal production.

According to a study (ANDRADE, 2003), people who have some vocal disorder report having a more negative social response, while people without or with milder alterations tend to have a more positive response.

Thus, this paper uses an adaptation of the Vocal Profile Analysis Scheme (VPAS) script, based on the phonetic model described by John Laver in 1980, in order to analyze whether there is a relationship between the perceptual-auditory aspects of vocal quality and vocal dynamics and the findings of the voice pleasantness analysis of emergency teleoperators.

2 | METHODOLOGY

The present study is characterized as observational, descriptive, cross-sectional, and quantitative and qualitative in nature. It was approved by the Ethics Committee for Research with Human Beings of the institution of origin, under process number 0532/14 (CAAE:36516514.0.0000.5188), approved on May 28, 2021. All teleworkers and students who participated signed the Informed Consent Form (ICF) before undergoing the procedures related to the research, in accordance with the recommendations of resolution 466/12 of the National Research Ethics Committee (CONEP).

Initially, the Integrated Operations Center (CIOP) was contacted to obtain permission to access the emergency call database. The nine samples were selected based on the following eligibility criteria: being male; having worked in the call center for more than three months; not being on leave or away from work and/or undergoing speech therapy; the voice sample must have at least 20 seconds of direct speech from the operator alone, with no

other voice overlapping.

The calls were from the areas of police occurrences (investigation of suspicious behavior, disturbance of the peace and theft). A perception experiment was built on Google Drive for lay judges to evaluate the nine vocal samples. In addition, 20% of the sample was repeated for reliability analysis of the judgments. To collect the responses from the experiment, a form was designed for these judges with their impressions regarding the vocal samples. The method for collecting these impressions was by means of a semantic differential scale (OSGOOD, SUCI and TANNENBAUN, 1957).

Ten pairs of opposite adjectives were chosen, to be applied to each of the nine voices, for each pair, the judges marked on a likert scale from 0 to 4 (positive adjective), 5 (neutral) or from 6 to 10 (negative adjective), based on the impression conveyed by the voices of teleoperators. The lay judges were 24 first-year Speech Therapy students, with no previous experience in the voice field, who used a computer and personal headphones.

Then the vocal samples were also sent for perceptual-auditory analysis through the Vocal Profile Analysis Scheme for Brazilian Portuguese (VPAS-PB), which was carried out by a judge experienced in the area of voice and with more than 13 years of training and practice in this script. VPAS-PB is an adaptation proposed by Camargo and Madureira (2008a) of the original Vocal Profile AnalysesScheme (VPAS) (LAVER et al., 1981), so that it could be applied to Portuguese speakers. This analysis tool consists of two evaluation parts: the first investigates vocal quality and its tract adjustments, followed by tension and phonatory elements, and the second the aspects of vocal dynamics, which includes prosodic elements, as well as breathing support. This analysis was described by means of a grading where 0 is absence of adjustment, “P” is the presence of adjustment without grading, and from 1 to > 4 is the level of adjustment. Another characteristic analyzed was intermittency (i).

All data were tabulated in Microsoft Office Excel 2003 program. After that, a descriptive statistical analysis (proportions) of the data from the response form of the lay judges’ judgments was performed. As for the analysis of the evaluation data by the experienced judge, they were described in a table based on the VPAS-PB script and analyzed qualitatively.

3 | RESULTS AND DISCUSSION

As for the analysis of the judgments, the most recurrent negative adjectives in the voice samples per teleoperator were: unpleasant (T1, T4, T5, T7 and T8); and informal (T1, T4, T7, T8 and T9), followed by: disinterested (T4, T5, T7 and T8), harsh (T1, T4, T5 and T8) and confused (T4, T6, T7 and T8).

Moreover, of the nine teleoperators who participated in this study, the voice that received most negative impressions by lay judges was that of teleoperator 4 (T4): unpleasant

(62.50%), disrespectful (70.80%), impatient (87.50%), disinterested (66.70%), rude (87.50), confused (54.20%), informal (58.30%) and harsh (83.30%). Next was teleoperator 7 (T7), and her voice was seen as: unpleasant (58.30%), disinterested (45.80%), confusing (45.80%), redundant (45.80%), informal (66.70%) and insecure (45.80%).

On the other hand, of the nine teleoperators, the voices that received the most positive impressions were T2, T3 and T6. Teleoperators 2 and 3 (T2 and T3) had a vocal performance considered: pleasant, respectful, patient, interested, polite, clear, objective, formal, empathetic and safe. Teleoperator 6 (T6) received neutral judgments on most scales. T2 and T3 presented positive impressions in all 10 scales and T6 received only one negative adjective (confused).

Regarding the VPAS-PB responses, vocal quality adjustments predominated, such as decreased lip extension, closed jaw, lowered tongue body, recessed tongue body, lowered larynx, and modal voice. Regarding vocal dynamics, decreased pitch variability and fast elocution rate were observed.

The adjustments found in T1 were: advanced tongue tip (grade 3), lowered tongue body and lowered larynx, both grade 4, besides modal voice and crackling voice (grade 3, intermittent). T2, on the other hand, presented advanced tongue tip (grade 4), rough voice (grade 3), elevated larynx (grade 2), and laryngeal hyperfunction (grade 2).

Meanwhile, teleoperator 3 (T3) presented the following adjustments: advanced tongue tip, lowered tongue body, denasal and elevated larynx, all grade 3, besides intermittent decreased tongue body extension. The vocal dynamics adjustments of T3 were high habitual pitch (grade 2), increased habitual loudness (grade 3), increased loudness variability (grade 3) and fast elocution rate (grade 3). In teleoperator 4 (T4) were found as vocal quality adjustments: decreased lip extension, decreased tongue body extension and lowered larynx, all graded 4. There was a closed jaw adjustment in this voice of grade 5, besides the lowered and indented tongue body, both graded 3. He also presented modal voice. As vocal dynamics adjustments in T4, there was pitch variability decreased (grade 4), loudness variability increased (intermittent, grade 4) and fast elocution rate (grade 5).

In teleoperator 5 (T5) as for vocal quality adjustments, he presented: decreased lip extension and closed jaw - both in grade 4, lowered larynx (grade 3) and presence of modal voice. As for vocal dynamics in T5, two adjustments were found: pitch variability and decreased loudness (grade 3). Teleoperator 6 (T6) had a lowered and retracted tongue body (grade 3), lowered larynx (grade 4) and presence of modal voice, besides a closed jaw in extreme degree (5), when vocal dynamics, there was variability of decreased pitch (grade 3), decreased habitual loudness (grade 4) and decreased loudness variability (grade 3).

Three grade 5 adjustments were found in teleoperator 7 (T7): lowered larynx, closed jaw, and lowered habitual pitch. Others found were the lowered and recessed tongue body

and crackling voice (grade 4). It was also verified the presence of modal voice in T7 and decreased lip extension, pitch variability and loudness (grade 3).

As for the vocal quality of T8 and T9, they had adjustments of decreased lip extension (grade 4), indented tongue body (grade 3) and presence of modal voice for both. Regarding vocal dynamics adjustments, variability of increased loudness (grade 4), interrupted continuity (grade 4) and fast elocution rate (grade 3) was found in T9.

As for the relationship between voice pleasantness and the perceptual-auditory analysis through the VPAS-PB, the teleoperator who presented the most pleasant voice was T2 (95.80%), also presenting VPAS adjustments in a lower degree, unlike T4 which presented adjustments with higher degrees and his voice was referred to with a higher percentage in terms of unpleasantness (62.50%).

It is necessary to consider that each individual is endowed with a singular phonatory apparatus in its anatomy, and this makes some adjustments prevail more than others, taking into consideration sex, linguistic, paralinguistic and extralinguistic aspects.Each speaker tends to use, recurrently or not, some particular muscular adjustments, being part of his/her habitual speech style (LAVER, 1979), Since muscle adjustments are controllable, they can be learned and modified when necessary (MACKENZIE-BECK, 2005).

There was a prevalence of lowered larynx, present in six of the nine voices (T1, T4, T5, T6, T7, and T8). Pittam (1994) states that larynx height establishes a significant relationship with pitch characteristics; the lower the larynx is at the neck, the lower the pitch is. This occurrence of voices considered as low can be related to the fact that all nine teleoperators are male, which generally has a lower voice (GONZÁLES, 2002). Of these six teleoperators who had the low larynx setting, most (T1, T4, T5, T7 and T8) received many negative adjectives from lay judges. Contrary to the data found in this study, the study by Figueiredo et al. (2003) says that with regard to fundamental frequency, low voices are considered more pleasant. Moreover, four of these six voices were reported as “harsh” (T1, T4, T5 and T8), among them T4 and T8 were considered “disrespectful” and “impatient”. These vocal samples were judged with negative adjectives probably due to the influence of the vocal dynamics settings of decreased pitch variability and fast elocution rate, predominant in the teleoperators participating in this research.

On the other hand, according to Campos and Salgado (2005), low pitched voices convey a greater sense of security, agreeing with the present study, where it was seen that of the six voices with low laryngeal adjustment, a large part of the vocal samples (T1, T4, T5 and T8) were considered secure.It was found that the two teleoperators who presented grade 5 for the fast elocution rate adjustment (VPAS-PB), were the ones who also had more negative impressions by the perceptual-auditory evaluation of lay judges (T4 and T8). Agreeing with these results, a study by Fontana (2012) says that elocution rate contributes to promoting meaning effects and holding the listener’s attention. Therefore,

since this adjustment refers to the articulatory speed, the faster the movements, the higher the muscular activity tends to be, which can generate oscillations and tremors that affect communication and listener comprehension (ARCURI et al., 2009).

According to Oliveira (2004), the tongue presents itself as an important musculature, giving mobility and influencing the volume of oral cavity and laryngeal movements. In the current study, it was observed that six teleoperators (T1, T4, T5, T6, T7 and T8) presented low laryngeal adjustment, among these, only T5 did not present the lowered tongue body adjustment. Based on Laver's theoretical model (1980) there is a relationship between some adjustments, which can be by compatibility, where an adjustment excludes by antagonism the execution of the other; and interdependence in which an adjustment interferes, helping or facilitating the production of another, thus, it can be considered that the low larynx adjustment is interdependent on the lowered tongue body adjustment.

As for the predominant receded tongue body adjustment, since most teleoperators were born and raised in João Pessoa, it may be due to the accent in João Pessoa, since a study by Lima et al. (2007) showed the predominance of receded tongue body adjustment in male and female speakers.

As for the closed jaw fit, T4, T7 and T8 (all grade 5), presented unsatisfactory pleasantness results. On the other hand, T2, considered a voice with a positive impression and judged for transmitting clarity, showed no closed jaw adjustment. Thus, we can correlate the impression of clarity in transmitting information to the closed jaw setting, since Taucci and Bianchini (2007) bring in their study the fact that the reduction of vertical amplitude and articulation of speech more closed, hinders the accuracy of elocution and clarity of sounds.

According to Laver (1980), roughness is related to increased laryngeal tension, caused by irregular glottal wave, fundamental frequency disturbance and unpleasant sound characteristic. This idea is reinforced by Behlau and Pontes (1995) when they attribute to the rough voice an unpleasant and also irritating sound characteristic. From the analysis of the VPAS-PB, it was found that two teleoperators were judged with this adjustment ¬¬¬¬¬¬¬¬¬-T2 and T9. The findings of this research showed that both T2 and T9 obtained positive impressions when analyzed by lay judges, which suggests that, as far as pleasantness is concerned, the aspects of vocal dynamics proved to be more relevant than the vocal quality adjustments in the perception of lay judges. Another important fact to analyze is that the hoarseness adjustment is composed by the adjustments of air escape and rough voice, so the teleoperators T2 and T9, who presented these adjustments, are considered with the presence of hoarseness compound adjustment (LAVER, 1980; LAVER et al., 1981).

Adjustments such as harsh voice, air leak, laryngeal hyperfunction, elevated larynx, closed jaw, elevated tongue body, associated with the prevalence of aspects of vocal dynamics such as variability of decreased pitche loudness, pitch and loudness habitual high and high elocution rate are seen as typical occurrences in pictures of voice disorder (LIMA-

SILVA et al., 2012). As for the increased elocution rate present in six teleoperators (T1, T2, T3, T4, T8 and T9), it was considered as a factor of vocal hyperfunction (FIGUEIREDO, 1993). Another common finding among the results of this research was a closed jaw, a setting that limits range of motion, an alteration that can lead to Temporomandibular Dysfunction (TMD) (DWORKIN et al., 1990).

4 | CONCLUSION

There was a relationship between the perceptual aspects of vocal quality and dynamics and the findings of the analysis of pleasantness of the voice of emergency teleoperators. The emergency teleoperator, for using only the vocal resource, makes it so important the good use of such settings to convey a good impression. Thus, these data prove that the quality and dynamics of the voice of teleoperators participating in this research can compromise the quality of service and also, it appears that most of the adjustments identified may favor the development of dysphonia.

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CAPÍTULO 9

ASPECTS OF QUALITY AND VOCAL DYNAMICS OF TELEOPERATORS OF AN EMERGENCY CALL CENTER

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ABSTRACT: Among the professionals who are part of the area of care call assistance, there are emergency call service operators. These professionals often deal with unfavorable working conditions for good vocal health and, in addition, with a high workload, which considerably increases their risk of developing eminent vocal pathologies. **Objective:** to investigate perceptual issues of speech quality and dynamics of telemarketers at an emergency call center. **Methods:** the research was conducted using the script Voice profile Analysis Scheme for Brazilian Portuguese (VPAS-PB), from the Phonetic Model of Vocal Quality Analysis, developed by Laver (1981) for a complete analysis of the vocal quality and dynamics of speakers. The present study was characterized as being observational, documentary, descriptive, cross-sectional and quantitative and qualitative, with analysis of 20 voice samples from 10 men and 10 women. **Results:** in the male population, the predominant adjustments of vocal quality were found: decreased lips extension; jaw closed; tongue body retracted, lowered and decreased extension; lowered larynx; air escape and harsh voice, while vocal dynamics highlighted the rapid speech rate. And in the vocal quality of the female population, the following were predominantly observed: body with lowered tongue, lowered and reduced extension; pharyngeal constriction; vocal tract hyperfunction; air escape and rough voice, regarding the dynamics, a decreased pitch variability was noted; increased habitual loudness and rapid speech rate. **Conclusion:** it was possible to observe the presence of adjustments in the vocal tract that can point to overload of the vocal tract in emergency telemarketers, which can lead to the development of voice disorder.

KEYWORDS: Voice, Voice Quality, Telecommunications, Occupational Health.

1 | INTRODUCTION

Professionals who use their voices as a work tool need a good vocal quality to perform their jobs satisfactorily. Among them, teleoperators stand out. First, we can highlight different groups of teleoperators: the active ones, who establish contact with customers, and

the receptive teleoperators, whose function is to receive calls from customers or potential customers (MONTEIRO, 1997). Finally, there are also professionals who fall into the category of commercial tele-operators, responsible for trying to build customer or potential customer loyalty, and assistance tele-operators, who offer emergency call answering services (DE ANDRADE AND AZEVEDO, 2006), the latter being the target audience of the current study.

Most work under unfavorable conditions for good vocal health (CAVAIGNAC, 2011). Added to this is a very abusive and exhaustive work day, which in the case of emergency teleoperators of João Pessoa corresponds to 12 hours, contributing both to possible psychological disorders that may be developed by professionals, as well as to eminent vocal pathologies.

One possibility of vocal evaluation of teleoperators is the perceptual-auditory, although it is considered subjective because it is based on the auditory impression about the vocal emission of a person (NEMR et al., 2012), it is extremely important, while through this modality, it is possible to obtain the inference of important anatomical and physiological data and provide information about the psychosocial aspects of the voice. Thus, with training, it is possible to create the perception of parameters that the individual uses during vocal production (BARAVIEIRA, 2016).

Within the perceptual-auditory field, the Voice profile AnalysisScheme(VPAS-PB) evaluation script is inserted, which studies the vocal quality and dynamics of speakers (LAVER, 1981). This is based on the Phonetic Model of Vocal Quality Analysis developed by John Laver (1980), which details vocal quality by combining articulatory, physiological, acoustic and auditory adjustments of compound mobilizations during speech. Later, an adaptation of the script into Portuguese was proposed by Camargo and Madureira (CAMARGO; MADUREIRA, 2008).

Thus, it is important to evaluate the voice of emergency telephone operators, in their vocal quality adjustments and dynamics aspects, since this professional group is extremely important to society, in order to ensure studies that provide more effective speech and hearing interventions in the area of voice and the service provided.

2 | METHODS

The present study was approved by the Ethics Committee on Research with Human Beings of the institution of origin, under process number 0532/14 (CAEE:36516514.0.0000.5188), approved on May 28, 2021. It is classified as a cross-sectional, observational, descriptive, documentary study of a quanti-qualitative nature. It was carried out at the Integrated Center for Police Operations (CIOP). Participants signed the Informed Consent Form (ICF) as per MS/CNS/CNEP Resolution n° 466/12 of December

12, 2012.

A total of 30 samples were received that passed through eligibility criteria, being considered eligible those that: met the proposal of the theme; did not have strong external noises; had the voice of the teleoperator in evidence; had the call made on Saturday and in the last 6 hours of the teleoperator's shift. Moreover, it was necessary that this professional had at least one year of experience. Finally, 20 call samples from 10 male and 10 female tele-operators were part of this study. A total of 10% of the sample was repeated for intra-judge reliability analysis, resulting in 22 samples.

Then, the Praat editing program was used, in order to make sure that a minimum of 20 seconds of speech by the operator alone remained. Later, these files were uploaded to Dropbox and made available to two judges who, using a form based on the Voice profile AnalysisScheme for BrazilianPortuguese (VPAS-PB) script, analyzed them in consensus.

In the first instance, contact was made with the CIOP management, which was responsible for authorizing the development of the research, providing access to the digital bank of recordings of the calls. Thus, a selection of calls from February 2020 was made, most often framed as disturbance of peace, domestic violence and noncompliance with sanitary measures, through Google Drive, the samples were given to a judge experienced in Voice Profile Analysis Scheme (VPAS-PB) (CAMARGO; MADUREIRA, 2008).

Through this script it was possible to analyze the set of factors that contribute to the quality of communication, among them the quality and vocal dynamics adjustments. Vocal quality is characterized by the behavior of the combination of supralaryngeal (articulatory), laryngeal (phonatory) and muscular tension adjustments.

As for the quantitative aspect, the script uses a scale that evaluates the aspects in six grades (from 1 to 6), considering the use of inadequate adjustments by moderate grade when scoring 1, 2 and 3, and by extreme grade when scoring 4, 5 and 6. This measurement is based on the judgment that an unaltered voice uses neutral adjustments. As for the analysis of the evaluation data by means of the VPAS-PB done by the experienced judge, these were described in chart 1 and analyzed qualitatively.

3 | RESULTS AND DISCUSSION

Laver (1980) proposes that the quality adjustments and the aspects of vocal dynamics must be understood through the factors of interdependence (one adjustment interfering in the work of the other which may favor or hinder), compatibility (one adjustment excludes by antagonism the production of the other) and susceptibility (a segment may be more vulnerable to interference from an adjustment). It is necessary to understand that the totally neutral production of the adjustments is very rare to be verified among speakers.

It was verified through perceptual-auditory analysis that prevalently the professionals present some adjustment of quality and vocal dynamics from moderate to extreme, a fact also present in other studies, which verify the presence of these adjustments and mention that these generate overload to the phonator apparatus. (MEDEIROS, 2019; SILVA, 2021).

The results of the perceptual-auditory evaluation of vocal quality and dynamics are shown in the following table, men are represented by TH and women by TM.

VOCAL QUALITY	FIRST PASS			SECOND PASS					
				Moderate				Extreme	
	Neutral	Non-neutral	ADJUST	1	2	3	4	5	6
A. ELEMENTS OF THE VOCAL TRACT									
1.lips			Rounded/ Practiced			TH5			
			Stretched						
			Labiodentalization						
			Decreased extension			TH6 TH7	TH1 TH5 TM1 TM5 TM6 TM8	TH2	
			Extended						
2. Jaw			Closed				TH1 TH4 TH5 TH6 TM6	TH2 TH7 TM5 TM8	
			Open			TM2	TH3 TM3		
			Protracted						
			Decreased Extension				TH2 TH5 TH6		
			Extended			TM9			
3.tongue tip/ blade			Advanced			TM2	TH7		
			Pulled back						

4. Tongue body	Advanced	TH8 TM1	TH1 TH2 TH3 TH4 TH5 TH6 TH9 TH10 TM2 TM4 TM5 TM6 TM8	TM3	
	Retreated			TM10	
	Raised	TM1	TH2 TH3 TH4 TH5 TH7 TH9 TH10 TM5 TM6 TM8	TH6 TH8 TM3 TM4	
	Lowered		TM2	TH1 TH5 TH7 TH8 TM1 TM6 TM8	TH2 TH6 TM5
	Increased Extension				
5.pharynx	Constriction		TM10	TM1 TM6 TM7 TM9	TH1 TH3
	Expansion		TM3		
6.velopharynx	Audible nasal leak			TH5	
	Nasal	TM1	TH3	TH5	TM7
	Denasal				
7. Laryngeal height	Elevated	TH7	TM7	TM9	TM10
	Lowered	TH8 TM2 TM4	TH2 TH4 TH5 TH10 TM3 TM8	TH6	
B. GENERAL MUSCLE TENSION					
8. Vocal tract tension	Hyperfunction		TH8 TH10 TM5(i) TM7	TH9 TM2 TM4 TM10	TM9
	Hypofunction				

9. Tensão laríngea			Hyperfunction			TM1	TH3 TH8 TH10 TM6 TM9	TH1	
			Hypofunction						
C. PHONATORY ELEMENTS									
	ADJUST	**Present Neutro**	**No Neutral**	**Scale Degrees**					
				Moderate				Extreme	
				1	2	3	4	5	6
10. Phonation mode	Modal								
	Falsete								
	Voice crackle/ vocal fry								
	Voice crackle								
11. Laryngeal friction	Air leak		TH1 TH3 TH8 TH9 TH10 TM1 TM5 TM6 TM8 TM9						
	Blowing voice								
12. Laryngeal irregularity	Rough voice			TH9	TM5 TM6 TM7 TM8 TM9		TH3 TH8 TH10 TM1	TH1	

LEGEND: Teleoperators 1, 5, 6, 7, 8, 9, 11, 13, 14, 17 - male sex; Teleoperators 2, 3, 4, 10, 12, 15, 16, 18, 19, 20 - female sex.

Table 1. Perceptual-auditory judgment of the vocal quality and vocal dynamics of emergency telephone operators.

In the vocal quality of women it was possible to observe predominantly the following vocal quality adjustments: pharyngeal constriction; retracted tongue body, lowered and reduced extension; rough voice; air leak and vocal tract hyperfunction. As for dynamics, increased habitual loudness, decreased pitch variability and fast elocution rate were noticed.

Regarding the vocal quality of men, the following adjustments were predominantly observed: retracted tongue body, lowered and reduced extension; reduced extension of the lips; lowered larynx; air escape; harsh voice and closed jaw. As far as vocal dynamics goes, we noticed a fast elocution rate, as well as a decreased pitch variability.

In all individuals in the sample studied, the high occurrence of changes in the adjustments of lowered tongue body (six women and nine men), retracted (eight men and seven women) and decreased extension (six men and five women), can be explained by

the intensive use of this organ, and that there is hypertension of it, leads to the retracted position and changes the pattern of the vocal tract (CAMARGO; MADUREIRA, 2009).

In the female population was verified presence of hyperfunction of the vocal tract (six women), where this is related to increased effort during phonation and these individuals studied here, can direct us to evidence that the 12 hours of work practiced by this group can lead to the maintenance of a setting that the sample already has, increasing the risk of developing voice disorders. Emergency teleoperators may also present behaviors arising from the work environment, such as effort to speak and stress after work, arising from patterns with tension (SANTOS et al., 2016).

Pharyngeal constriction may also be related to the previous adjustment, leading to a reduction in vocal tract extension, due to the closure of the middle part of the pharynx by contraction of the pharyngeal walls and retraction of the dorsum of tongue, leading to an impact on vocal quality, where the voice will be pitch sharp and there will be significant effort when speaking (LIMA-SILVA, 2012; MEDEIROS, 2019; SILVA, 2021). This adjustment has also been related to the Pessoan accent, since Lima et al (2007) noticed this same configuration in a set of women speakers in the city of João Pessoa. These data were also corroborated in a study that investigated the vocal profile of emergency teleoperators after working hours (MEDEIROS, 2019).

The hyperfunction of the vocal tract alters the closure and vibration devices of the vocal folds promoting a decrease in the extension and variability of f0, leading to an increase in the tension of the system, which explains in this study the appearance of pitchdecreased variability (five women) (ANDRADE et al., 2016; MEDEIROS, 2019).

The decrease in pitch variability can negatively affect the communication of teleoperators with the users of the service, in the sense that it is through the prosodic indicators that emotion is expressed, with the presence of this monotonicity in speech the listener may have the impression that the teleoperator does not present an intention to solve their problem (MEDEIROS, 2019).

Air escape and harsh voice adjustments were found in both genders and there was a high prevalence (respectively five men and five women, and five men and six women). Air leakage occurs when there is imperfect glottal closure, which can cause noise, while the rough voice points to irregular mucosal vibration from stiffness. The excessive and incorrect use of the voice can lead to hoarseness, which comprises the combination of the adjustments of air leak and rough voice (CAMARGO, 2002).

When analyzing the male population one of the most frequent adjustments and with greater impact (it happened in six of the ten teleoperators) was the closed jaw. Through the presence of this parameter we can verify the functional imbalance of the extrinsic muscles of the larynx, the increased adductor force of the vocal folds, as well as, can interfere

with the articulation of sounds, affecting the sending of the message (LIMA-SILVA, 2012). The setting of decreased lip extension may present a relationship with the previous one, because when a decrease in jaw amplitude is observed, there is an associated articulatory imprecision, demonstrating the frequent appearance of this configuration (SILVA, 2021).

With regard to vocal dynamics, a parameter quite observed in this population was the increase in elocution rate, which can impair both the quality and duration of segments affecting in prosody, as well as generate overload (MADUREIRA, 2016; MEDEIROS, 2019). This fact corroborates with another study conducted with teachers with vocal complaints and laryngeal changes (LIMA-SILVA, 2012).

The high habitual loudness was an aspect found in five women and refers to the increase in voice intensity unconsciously. This parameter is present in teleoperators, commonly associated by the need to compete with noise in the work environment (SANTOS et al., 2016).

4 | CONCLUSION

We observed peculiarities both in vocal quality adjustments and in vocal dynamics parameters of emergency teleoperators in this study, which signaled an overload of the phonation system. As far as vocal quality adjustments are concerned, male operators had a recessed tongue body, lowered and reduced extension; reduced extension of the lips; lowered larynx; air leakage; harsh voice and closed jaw. In the female gender we noticed pharyngeal constriction; lowered tongue body, lowered and reduced extension; harsh voice; air leak and vocal tract hyperfunction.

As far as vocal dynamics are concerned, both groups showed decreased pitch variability and fast elocution rate, and only the teleoperators showed increased habitual loudness.

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CAPÍTULO 10

RELATIONSHIP BETWEEN COVID-19 SYMPTOMS AND VOICE QUALITY OF LIFE AMONG TELEOPERATORS IN AN EMERGENCY CALL CENTER

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ABSTRACT: The emergency call operator mediates and collects information, through telephone calls, relevant to the applicant, in identifying the location, as well as in the transfer of this data to the responsible sectors. Studies show that due to the long working hours, these workers may experience the presence and/or evolution of vocal disorders, linked to excessive use of the voice in their service. In addition, due to the Covid-19 pandemic and the need for these professionals to continue working in person, there is a concern that they will be infected in their work activities. **Objective:** To identify whether there is a relationship between the symptoms of Covid-19 and the voice quality of life of telemarketers at an emergency call center. **Methods:** Observational, descriptive, analytical, cross-sectional and quantitative study, with the participation of 46 telemarketers from an emergency service center in João Pessoa. Participants answered a form containing 157 questions prepared by the researchers, using questions adapted from the Voice Profile of the Telemarketing Operator and a Voice Quality of Life questionnaire, via Google Forms. Results: It was found in participants with symptoms of Covid-19, vocal symptoms of hoarseness, voice failure, weak voice and tiredness when speaking, as well as lower values for voice quality of life. **Conclusion:** Thus, there was a relationship between the symptoms of Covid-19 and the voice quality of life of emergency telemarketers.

KEYWORDS: Voice, Worker's health, COVID-19.

1 | INTRODUCTION

Voice professionals are those who use vocal production as a primary tool of work and need the maintenance of their vocal quality to perform their functions (CIELO; RIBEIRO; HOFFMANN, 2015). Among these professionals, we highlight telemarketers, who mediate, through telephone calls, the user's access to a given information/service (FERREIRA et al., 2008).

Among the teleservice sectors, it is worth mentioning the category of emergency call operators, responsible for capturing information from the requester, identifying the location and nature of the emergency, as well as transmitting the information to the responsible teams (firefighters, military police, civilian or medical team), aiming to ensure the resolution of the situation (BUREAU OF LABOR STATIST, 2013). Generally, these professionals have specific training (firefighters, military police or civilian police) and must fulfill a workload of 12 hours a day, interspersed with two consecutive rest days (SANTOS et al., 2016).

Given the long working day and the constant work stress, teleoperators can obtain the presence and/or the evolution of vocal disorders linked to the excessive use of the voice, which can negatively affect the quality of life of these individuals and collaborate to the development of possible dysfunctions, such as musculoskeletal body pain related to work or postural changes by repeated actions (mouse use, typing, phone use) (CONSTANCIO et al., 2012; MEDEIROS, 2019).

Added to this, with the pandemic arising from SARS-CoV-2 or Covid-19, there have been remarkable changes regarding the way workers act. According to studies (ISER et al., 2020; BRAZIL et al., 2021), this virus causes, in those infected, the appearance of several symptoms such as: dry cough, hoarseness, fever, mild dyspnea, sore throat, among others, becoming a great risk to workers in general. In this context, many countries have adopted sanitary measures aiming to reduce the percentage of infection, among which social distancing has been emphasized. In Brazil, in the first half of 2020, the Ministry of Health (MS) defined the criteria for isolation and quarantine, the closing of secondary establishments, and the use of some Personal Protective Equipment (PPE). With this, most of the services were reformulated to occur in a virtual way (home office) (BRAZIL, 2020).

However, the assistance category of emergency teleoperators continued to work in person, following protection measures stipulated by the MH and adopted by the institution against Covid-19. However, it is still possible that they are contaminated during their work activities. Thus, the study sought to identify whether there was a relationship between Covid-19 symptoms and the voice quality of life of telemarketers in an emergency call center, aiming to understand whether there are impacts that have a relevant influence on the lives of participants.

2 | METHODS

This is an observational, descriptive, analytical, cross-sectional, quantitative study. The research was approved by the Ethics and Research with Human Beings Committee of the Health Sciences Center of the Federal University of Paraíba (UFPB) on October 23, 2014, under process number 0532/14 and CAAE:36516514.0.0000.5188, approved on May 28, 2021. All participating teleoperators signed the Informed Consent Form (ICF) before being submitted to the procedures regarding the research, in accordance with the recommended by resolution 466/12 of the National Research Ethics Committee (CONEP).

This study was carried out with a sample of forty-six (46) emergency teleoperators working at the Integrated Police Operations Center (CIOP). This sample was defined by the following parameters: the teleoperators must agree to participate in all the stages of the study; they must not be on leave or away from their jobs and/or under speech therapy follow-up. Thus, from 58 teleoperators initially, 10 professionals were excluded for not meeting these criteria.

As for the sample characterization, the participants had been working in this center for about 6.93 (±6.37) years, and most of them were active and receptive (67.40%; n=31), male (63.00%; n=29), with a mean age of 38.98 (±8.63).

As for the collection procedures, at first we contacted the CIOP coordinator and explained the research proposal to the teleoperators. Subsequently, the TCLE was presented and filled out for the continuity of the collection. Then, a form developed by the researchers on GoogleForms was used and applied for data collection, using questions adapted from the questionnaire Perfil Vocal do Operador de Telemarketing (PVOT) by Santos et al. (2016) and using their own questionnaire of Quality of Life in Voice (QVL), validated by Gasparini and Behlau (2009), to investigate the before and during the pandemic of these individuals. The answers of 46 workers to these forms were analyzed, following the eligibility criteria. The collection occurred between the months of August to September 2020.

The survey form included 157 questions, referring to sociodemographic characteristics, teleworker activity, working conditions before and during the pandemic, and vocal conditions before and during the pandemic, vocal symptoms and laryngopharyngeal sensations.

Moreover, these 157 questions included questions adapted from the Voice-RelatedQuality of Life (V-RQOL) questionnaire (HOGIKYAN; SETHURAMAN, 1999) adapted and validated for Portuguese as Quality of Life in Voice (QVL) (GASPARINI; BEHLAU, 2009), which investigates the perception that the individual has of their vocal quality and their reactions to voice changes. The QVL includes 10 items covering 2 domains: socioemotional (questions 4, 5, 8 and 10) and physical (questions 1, 2, 3, 6, 7 and 9), as well as the global aspect (all questions). Each question has a scale to evaluate the severity of the problem,

expressed as follows: 1= it never happens and is not a problem; 2= it happens a little and is rarely a problem; 3= it happens sometimes and is a moderate problem; 4= it happens a lot and is almost always a problem; 5= it always happens and is really a bad problem. After scoring each domain, they have values that, after standardization, range from zero to one hundred, with a cutoff value of 91.25. Values above the cutoff point reflect better voice quality of life, while more below the cutoff point, show greater limitations imposed by the voice problem (BEHLAU et al., 2016).

Statistical analysis was performed usingStatisticalPackage for Social Sciences (SPSS) software, version 20.0. The data were tabulated in a digital spreadsheet and analyzed descriptively, through measures of frequency, absolute and relative, and measures of central tendency. We also performed inferential analysis using Pearson's chi-square test, in order to associate the moment and the presence of symptoms related to Covid-19 with vocal aspects, and the paired parametric T-Student test for independent data, to compare the quality of life in teleoperators with and without Covid-19 symptoms. The significance level adopted was 5%.

3 | RESULTS AND DISCUSSION

The sample of this study is composed of 46 individuals, characterized mostly by males (n=29; 63.00%) when compared to females (n=17; 37.00%), with a mean age of 38.98 (±8.63).

Most of the emergency room teleoperators had no symptoms of Covid-19 (n=24; 52.20%), having been tested (n=25; 54.30%) serologically (n=21; 45.70%) by the facility (n=22; 47.80%) and received a negative result (n=19; 41.30%). Despite this, positive results (n=6; 13.00%) for Covid-19 were also found among this sample, which may be an indication of the possibility of contagion within the establishment.

It was found that although teleoperators with Covid-19 symptoms did not notice changes in their voice, there was the presence of vocal symptoms such as hoarseness, voice failure, weak voice, and tiredness when speaking, with a significant difference between the two groups (with and without Covid-19 symptoms), given that Pearson's Chi-square Test showed a significance ($p<0.005$) important for the study.

Variables	SYMPTOMS OF COVID				p-value
	YES		NO		
QVL total	96,44	4,35	99,34	1,13	0,008*
QVL emotional	53,61	10,88	60,85	2,82	0,008*
QVL physicist	77,41	7,25	82,23	1,88	0,008*

Test t-Student for independent data; significance p<0.005*.

Table 1 - Comparison of mean QVL in emergency teleoperators during the pandemic, with and without symptoms of COVID.

Source: João Pessoa, 2020.

Analyzing the data regarding the means of QVL during the pandemic, a significant difference was identified in the domains (socioemotional, physical and global) of QVL, with the p-value for each domain equal to 0.008. Moreover, it was found that the QVL values of teleoperators with Covid-19 symptoms were low for all domains, being the socioemotional the one with the lowest value (53.61%; SD=10.88).

In the sample analysis, it was noticed that 22 teleworkers (47.80%) marked the item "yes" for the "presence of symptoms and diagnosis of Covid-19 in emergency teleworkers", even though less than half of the sample tested positive for the virus, allowing to understand that with the current circumstances, there was an increase in self-perception of vocal symptoms in these workers, which may be associated with their excessive vocal effort as a compensatory strategy for the continuous use of EPIs.

Cabral (2020) states that the use of the mask causes an attenuation between 5 to 12 dB in the intensity of speech sound, especially in the frequencies between 2,000 and 7,000 Hz responsible for the discrimination of phonemes, which causes a tendency to raise the pitch of the voice, aiming to circumvent the feedback impediment. Thus, the presence of vocal symptoms in teleoperators who do not present Covid-19 may be associated with the exacerbated use of the speech apparatus in an attempt to facilitate the transmission of the message during the execution of their functions.

Moreover, the number of participants who tested positive (n=6; 13.00%) for the Covid-19 virus, despite the low number, still shows as an alarming data for the continuity of the work of these workers, since the current literature, there is a high rate of infection in closed places, with a transmission rate of one infected person for up to 2 or 3 healthy people (MEDEIROS, 2020).

In those teleworkers who had Covid-19 symptoms, responses about voice symptoms were identified with a higher frequency of "sometimes" and "rarely" compared to those who did not have Covid-19 symptoms. The presence of hoarseness was mentioned by 7 individuals with symptoms of the coronavirus, or 31.80% of the professionals, through the answer "sometimes". There was also the existence of this vocal complaint in the frequency

of “rarely” in 6 participants (27.30% of teleoperators).

Moreover, the presence of a weak voice “sometimes” and “rarely” was found more often in participants with Covid-19 symptoms than those without these symptoms. Thus, the study showed a predominance of the vocal symptoms of hoarseness, voice failure, dry cough, weak voice, and tiredness when speaking, in participants with Covid-19 symptoms compared to those asymptomatic for this virus, agreeing with the study by Santos et al. (2016) who identified the prevalence of hoarseness, thick voice, and weak voice symptoms in emergency teleoperators and with the findings of Silva et al. (2016) who found among the most referred vocal symptoms, also those of hoarseness, voice failure, and weak voice, for voice professionals - although both studies did not dimension the Covid-19 issue as the present research did.

With the worldwide pandemic, coming from Covid-19, researchers sought to investigate more about the impacts caused by the virus to human beings, since this pathogen brings several symptomatologies and pathophysiological, emotional and social sequelae to the individual (SILVA et al., 2021). Specifically in the area of voice, there has been seen the need for research on the relationship between the symptoms developed by the virus and the impact on vocal production, since this virus affects the respiratory system and therefore tends to affect the phonatory system.

Lechien et al. (2020) conducted a study seeking to measure the prevalence of vocal disturbance in European patients with mild to moderate Covid-19 and the clinical characteristics of dysphonic patients. Data (clinical and epidemiological) were collected from 702 patients from 19 European hospitals. Their study exposed, among other findings, that vocal disturbance can be found in ¼ (one quarter) of patients with mild to moderate Covid-19 condition. These findings support the idea that the virus can also cause damage to the phonation system.

Analyzing the QVL of teleworkers, it was found that those with Covid-19 symptoms had a lower mean score compared to those without symptoms, indicating a worsening in the voice quality of life of these individuals. The most impaired QVL domain was the socioemotional one, present in the self-perception of teleoperators with and without Covid-19, being more expressive in those with the virus. It is known that the emotional issue is a determining factor for the proper functioning of the body, which can, in the presence of emotional imbalances arising from social, work or personal situations, cause the onset of dysfunctions that affect the quality of life of these individuals.

4 | CONCLUSION

Since those with Covid-19 symptoms showed a more intense presence of vocal symptoms such as hoarseness, voice cracking, weak voice, and tiredness when speaking

when compared to those not infected with the virus. In addition, we observed values below the ideal mean regarding the QVL of telecommuters with the presence of Covid-19 symptoms in all domains, being the emotional one the one with the lowest score for the infected ones. The data found in the research reinforce the importance of further studies with this public and the need for interdisciplinary action that must happen with emergency teleoperators in the city of João Pessoa.

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CAPÍTULO 11

RELATIONSHIP BETWEEN VOCAL AND STRESS SYMPTOMS IN EMERGENCY TELEOPERATORS

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ABSTRACT: Among voice professionals, telemarketers stand out for being exposed to environmental, organizational and individual risk factors that can impact their voice quality. **Objective:** To verify whether there is a relationship between aspects of stress and vocal symptoms in telemarketers at an emergency care center. **Methods:** This study was approved by the Ethics Committee for Research with Human Beings, under process number 0532/14. The same was carried out at the Integrated Center for Police Operations (CIOP) and it is a descriptive, observational, transversal and quantitative study. The sample consisted of 32 telemarketers of both sexes. These answered the Job Stress Scale questionnaire and the Telemarketing Operator Vocal Profile questionnaire. The data obtained were tabulated and analyzed using the free software R. **Results:** There were no correlations between stress and self-reported vocal symptoms by emergency call center operators. However, it was found that males were the most affected by stress and the most reported auditory and sensory vocal symptoms were: hoarseness, voice failure, dry cough, throat clearing and dry throat. **Conclusion:** There were no correlations between stress and self-reported vocal symptoms. However, most telemarketers presented stress and symptoms of voice disorder, which indicates the need to implement an interdisciplinary team consisting of a speech therapist, psychologist and physiotherapist to prevent and early detect disorders that may affect the communication of the telemarketer. emergency.

KEYWORDS: Voice, Telemarketing, Stress, Voice disorders.

1 | INTRODUCTION

In the current days, the teleoperator has been increasingly valued within companies, being responsible for direct communication with

the customer/user, either to provide information, sales or even to solve problems. Thus, the voice and image of the company becomes the voice of the teleoperator (BERTACHINI et al., 2000).

Among the voice professionals, teleoperators gain prominence for being exposed to multifactors that can generate or contribute to the development of vocal disorders. These risk factors for vocal health can be of environmental origin (such as intense voice use, sudden temperature change, too hot or cold environment, carpets, air conditioning, dust, smoke and noise in the environment), organizational (work-related stress, need for a greater number of breaks, unsatisfactory relationship with management, colleagues, and customers) and individual (age, gender, alcoholism, allergies, among others) (FERREIRA et al., 2018).

Bureau of Labor Statist (2013) point out that the duty of the emergency call operator is to define the important information of the requester, provide the location, as well as the nature of the emergency and pass on this information to the responsible sectors (fire department, military or civil police or even the medical team), who will go to the site of the incident to keep abreast of the situation and resolve it.

Therefore, the way this professional's work is organized can be quite rigid, exposing him/her to risks of voice-related diseases or bodily harm. Thus, teleoperators may present daily stress, often caused by the dynamics and characteristics of this profession, where they are subject to situations of tension, anxiety, nervousness and agitation (DASSIE-LEITE et al., 2011).

The main factor that can trigger vocal imbalance is psychological stress. Such factor, can affect one or more segments of the speech apparatus and cause vocal disorders even after the resolutions of psychological problems (PINHO, 1993). Stress responses contain states of apathy, fatigue, dissatisfaction, anxiety or even psychosomatic disorders of high severity (PENA et al., 2011).

A study conducted by Boone (1996), analyzed complaints from teleoperators regarding their voice, and found that they most often reported symptoms such as hoarseness, fatigue when speaking, loss of voice at the end of the work day, shortness of breath, constant coughing, pain when speaking and swallowing.

In addition, these voice professionals may present negative vocal signs and symptoms in different degrees, which may cause discomfort and compromise the performance in the profession (VILKMAN, 1996). The vocal disorders may involve alterations in the larynx, preventing the fulfillment and expression of the individual's functional needs (LEHTO, 2006; FERREIRA et al., 2008).

Considering the high rates of stress and vocal symptoms present in the context of these professionals, the phonoaudiological performance, in turn, may help them by performing guidelines and promoting new knowledge through programs of vocal health and

well-being, in order to prevent voice disorders and provide improvements in the quality of care (BERALDIN et al., 2005). Together with the psychologist, this may act in the selection and training of teleoperators with the aim of avoiding possible attacks of communication and psychological issues that can manifest themselves directly in the voice.

Given the above, the present study aimed to verify whether there is a relationship between the aspects of stress and the vocal symptoms self-reported by teleoperators of an emergency call center.

2 | METHODS

The research is characterized as descriptive, observational, cross-sectional, and quantitative. It was approved on May 28, 2021 by the Ethics Committee on Human Research of the institution of origin, under process number 0532/14 (CAAE:36516514.0.0000.5188). The study was conducted in an Integrated Police Operations Center (CIOP) that receives urgency and emergency calls to 190, 193, and 197.

First, a preliminary contact was made with the person responsible for the Integrated Center to allow the dissemination of the research at the site. With the acceptance of the teleoperators, all of them signed the Informed Consent Form (TCLE), giving permission to conduct and disseminate the research and its results, in accordance with Resolution MS/ CNS/CNEP No. 466/12, of December 12, 2012.

The sample was composed of 32 teleoperators, civil and military police officers and civil firemen who worked as teleoperators in the institution where the research was conducted. All participants had a working day of 12 hours a day and 48 hours off. The eligibility criteria were: teleoperators working for at least 6 months in the profession, of both genders, between 18 and 60 years old, who were not on leave or with respiratory system problems. The questionnaires were applied in the institution itself, according to the teleoperators' available schedules. These occurred from Monday to Friday, in the morning and afternoon, from September 2018 to March 2019.

To conduct the study, the questionnaire "Vocal Profile of the Telemarketing Operator" (PVOT) (SANTOS et al., 2016) was applied, which includes 63 questions that address: personal data, functional situation, physical environment of the company and vocal aspects. In addition, we also applied the Job Stress Scale (JSS) questionnaire (THEORELL; KARASEK, 1996), which was translated and validated into Portuguese by Alves et al. (2004). The JSS has three dimensions: demand, control, and support, and aims to understand the causes of stress in the work environment, as well as psychosocial and stressful factors.

The data were tabulated in Microsoft Office Excel program (version 2016), performed descriptive and inferential analysis using R software(version 3.2.5). In the descriptive analysis, the absolute and relative frequency of the variables gender, auditory and sensory

symptoms were analyzed, the mean age and length of profession were extracted, as well as the mean, median, first quartile, third quartile and standard deviation for the demand, control and support dimensions of the JSS questionnaire.

In the inferential analysis, we used the Mann-Whitney test to analyze the relationship between gender and the JSS questionnaire items (a 10% significance level was adopted), and Spearman's Correlation test, to check the relationship between the scores of the JSS dimensions and the auditory and sensory vocal symptoms (a 5% significance level was adopted).

3 | RESULTS AND DISCUSSION

Teleoperators are exposed to several risk factors that may favor the development or worsening of voice disorders, and among them are emotional aspects such as stress. Such factor can be caused by the dynamics and characteristics of the profession. Thus, the present study aimed at verifying if there is a relationship between the stress aspects and the vocal symptoms self-reported by the teleoperators of an emergency call center.

In this study 32 teleoperators of both genders participated, being the majority women (53.13%; n=17). When compared with the study of Santos et al. (2016), also conducted with emergency call operators, it was found that there was a disagreement, because there is usually a predominance of males in this position and in this study, it was observed that most were women. This finding may be related to the increased demand for women in the call center sector.

The average age of teleoperators was 39.96 years (SD=8.13), similar to other studies in the area (DASSIE-LEITE; LOURENÇO; BEHLAU, 2011; SANTOS et al., 2016). According to Behlau, Azevedo and Pontes (2001), the period of greatest vocal efficiency is between 25 and 45 years and with advancing age, it is expected that there is a reduction of this efficiency due to structural changes in the larynx due to aging.

The mean time in the profession was 7.70 years (DP=5.86). In parallel to these findings, a study byRechenberg et al. (2011), found that the average time of profession of emergency teleoperators was less than 2 years, while in the study ofConstancio et al. (2012), the average time of performance was one to five months. Thus, in this study, we observed a longer time of profession which may further corroborate the emergence or worsening of vocal disorders when associated with the time in exposure to risk factors.

All teleoperators who participated in the study had a daily workload of 12 hours, followed by 48 hours off (n = 32). It is worth noting that the workload limit for teleworkers must be 6 hours a day, including breaks. In addition, the weekly limit of 36 hours must be respected, according to the understanding of art. 384 of the CLT. (BEIRITH ADVOGADOS, 2018).

From the data obtained by the PVOT it is possible to conclude that, in the sample studied, 25.00% (n = 8) have already missed work due to voice alterations, 62.50% (n = 20) reported always being satisfied with their voice and 62.50% (n = 20) have never received guidance or participated in any vocal training.

	Present		Absent	
	n	%	n	%
Symptoms vocals auditory				
Hoarseness	8	25,00	24	75,00
Loss of voice	2	6,25	30	93,75
Voice cracking	7	21,88	25	78,12
Shortness of breath	5	15,62	27	84,38
Thin voice	1	3,12	31	96,87
Thick voice	5	15,62	27	84,38
Voice varying between thick and thin	4	12,50	28	87,50
Weak voice	6	18,75	26	81,25
Sensory vocal symptoms	2	6,25	30	93,75
Sand in the throat	5	15,62	27	84,38
Ball in throat	2	6,25	30	93,75
Cough	6	18,75	26	81,25
Dry cough	6	18,75	26	81,25
Coughing with phlegm	0	0,00	32	100
Pain when speaking	0	0,00	32	100
Pain when swallowing	2	6,25	30	93,75
Difficulty swallowing	1	3,12	31	96,87
Burning throat	3	9,37	29	90,62
Secretion	4	12,50	28	97,50
Dry throat	10	31,25	22	68,75
Tiredness when speaking	3	9,37	29	90,62
Straining when speaking	3	9,37	29	90,62

Table 1 – Frequency and percentage of auditory and sensory symptoms self-reported by telemarketers.

Source: João Pessoa, 2019.

Regarding auditory vocal symptoms, it was verified in Table 1 the predominance of hoarseness (25.00%; n = 8) and voice failure (21.88%; n = 7). When comparing these data with the study of Santos et al. (2016), it was found that the participating teleoperators also reported in greater evidence the symptoms of hoarseness and voice failure.

In this study, hoarseness was the most frequent vocal symptom reported by teleoperators, a finding similar to other studies conducted with the same population (CHRISTMANN et al, 2010; ARAÚJO, 2013; SANTOS et al., 2016). The emergence of this symptom is related mainly to the intensive use of the voice that results in an overload of the phonator, affects the configuration of the vocal tract and the way the vocal folds function (CHRISTMANN et al., 2010; AMORIM, 2011).

In the study by Amorim et al. (2011), a perceptual-auditory evaluation was performed to verify the vocal behavior of teleoperators before and after working hours. The results showed that tension, asthenia, roughness, murmur and instability were similarly evidenced before and after the working day. Thus, one can understand the importance of a perceptual-auditory assessment in addition to the voice evaluation, and relate them to the vocal symptoms referred by teleoperators when entering and leaving the service.

Regarding vocal sensorial symptoms, we noticed in greater evidence a dry throat (31.25%; n = 10), hawking (18.75%; n = 6) and dry cough (18.75%; n = 6) (Table 1). These findings were similar to those found in the study by Ferreira et al. (2008), which identified the presence of dry throat/mouth, hawking and tiredness when talking. Thus, one can understand that the results of this study may be associated with the intense use of the voice, a very present characteristic in the reality of these professionals.

Dimensions *JSS*	**Min**	**$Q_{1/4}$**	**Median**	**Media**	**$Q_{3/4}$**	**Máx**	**DP**
Demand	11,00	15,75	17,00	16,68	18,00	20,00	2,29
Control	16,00	18,00	20,00	19,59	21,00	23,00	1,94
Support	12,00	18,00	21,00	20,12	22,00	24,00	2,56

Legend: Min: Minimum; Q1⁄4: First quartile; Q3⁄4: Third quartile; Max: Maximum; SD = Standard Deviation.

Table 2 - Descriptive of the demand, control, and support dimensions of the Job Stress Scale questionnaire. Source: João Pessoa, 2019.

Regarding the scores of the dimensions of the JSS questionnaire, the Support dimension had the highest average with 20.12 (DP = 2.56) points per subject, followed by the Control dimension (MD = 19.59; SD = 1.94) and finally, Demand (MD = 16.68; DP = 2.29) (Table 2).

Items	Test statistics	p-value
a) How often do you have to do your work tasks very quickly?	84,00	0,02*
i) In your work, do you have to repeat the same tasks many times?	102,00	0,06*
l) Can you choose WHAT to do in your work?	179,00	0,03*

Mann-Whitney test *p≤0.1.

Table 3 - Comparison of Job Stress Scale items among male teleworkers. Source: João Pessoa, 2019.

Comparing the items of the JSS questionnaire according to gender, it was possible to observe that such comparison showed significant results in the items speed at work, task repetition and lack of autonomy for males (Table 3). This finding indicates that they have a greater disposition to stress and may be even more susceptible to developing voice disorders.

Studies with other voice professionals, verified that situations of contradictory or discordant demands, lack of autonomy and the high demand at work, can be generating sources of stress (GIANNINI et al., 2012; SOUZA et al. 2013; CORREIA et al., 2019). Thus, it is worth emphasizing the importance of actions aimed at providing the teleworker and the employer with strategies to reduce stress in the work environment, such as reducing the workload, more breaks for rest, favoring an adequate acoustic environment, appropriate furniture, comfortable personal equipment (headsets) and the provision of convenient strategies for good relationships between managers, colleagues and customers/users (FERREIRA, 2008).

Variables	Demand		Control		Support	
	p-value	*R*	*p-value*	*R*	*p-value*	*R*
Vocal Symptoms	0,650	0,083	0,285	-0,194	0,934	-0,015

Spearman's correlation test = p-value≤0.05; Legend: r = rho.

Table 4 - Correlation between JSS dimensions and self-reported vocal symptoms. Source: João Pessoa, 2019.

When performing Spearman's Correlation Test between the scores of the JSS dimensions and the auditory and sensory vocal symptoms, no correlation was observed between these variables in the sample studied (Table 4).

However, in view of the data exposed by the study, it was observed that it is essential to raise the awareness of the administration and management of the place for the implementation of an interdisciplinary team composed of a speech therapist, a psychologist and a physiotherapist. This team can act in the prevention and early detection of vocal, psychological and physical disorders in emergency teleoperators, which will promote a better quality of life and performance at work.

4 | CONCLUSION

No correlations were observed between stress and vocal symptoms self-reported by emergency teleoperators. However, it was found that males were the most affected by stress as a result of the need for speed at work, task repetition and lack of autonomy. The most frequently mentioned auditory and sensory vocal symptoms were hoarseness, voice failure, dry cough, hawking and dry throat. Most teleoperators presented symptoms of voice disorder and stress, which points to the need of implementing an interdisciplinary team composed of speech therapist, psychologist and physiotherapist to prevent and detect early, the disorders that may affect the communication of the emergency teleoperator.

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CAPÍTULO 12

EFFECTS OF A VOICE ADVISORY PROGRAM FOR POLICE EMERGENCY TELEOPERATORS

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ABSTRACT: Telemarketers use the voice as their main work tool, and during long working hours they adopt inadequate vocal adjustments during long working hours. To assist in the promotion of vocal and occupational health of these workers regarding vocal disorders, speech therapy intervention strategies can be discussed. **Objective**: To verify the effects of a proposal for intervention in vocal health for telemarketers at a police emergency service center. **Methods**: This research is characterized as an interventional and field research with a quantitative approach, in which 10 telemarketers participated in an assessment during two moments (pre- and post-intervention) with the support of questionnaires being the voice self-assessment, aiming to observe the condition of the voice profile of the teleoperator (PVOT); and the second specific for vocal health and hygiene (QSHV), in addition, there was the auditory-perceptual analysis of vocal quality sent for evaluation by three judges with training and experience in the GRBASI scale. The intervention period was carried out in seven meetings, in the first moment there was an evaluation and in the last one, all the volunteers underwent a re-evaluation, in the other meetings, guidance regarding vocal health was addressed. The answers obtained by the questionnaires were tabulated in the Microsoft Office Excel 2010 program database and later submitted to statistical R tests. **Results**: The analyzed data indicate a significant reduction in vocal symptoms and laryngopharyngeal sensations when compared to the time interval of the interventions, such results were ratified by the auditory-perceptual analysis when verifying an improvement in the parameter of general degree of vocal alteration. **Conclusion**: The proposed intervention actions promoted changes in relation to the perception of vocal health and knowledge about care to maintain healthy vocal patterns.
KEYWORDS: Voice, Occupational Health, Self-Assessment.

1 | INTRODUCTION

Among the studies of voice is observed a need for expansion of research focused on speech therapy, and thus can be discussed actions of prevention and promotion of vocal health, especially directed to the groups of voice professionals. These workers, when they receive specialized guidance on the proper use of the voice, are able to work more efficiently, as

well as present a reduction in cases of vocal illness (FERREIRA et al., 2008).

Teleoperators use the voice as the main tool of work, during their performance at the emergency call centers must provide relevant information to the requester, capture and provide the location and nature of emergencies, as well as, pass on as much information to the responsible sectors (firefighters, military and civil police, or medical teams), aiming at greater effectiveness in attending the occurrence (SANTOS et al., 2016).

The vocal complaints presented by teleoperators happen due to factors such as unfavorable environmental conditions and issues related to the wrong individual behaviors, for example, the low intake of water and the work shift without breaks, such elements contribute to the development of symptoms of Work-Related Voice Disorder (WRVD) (GIRARDI et al., 2017). As Araújo (2013) points out, the guidance received by voice professionals is insufficient for efficient vocal use in their work spaces.

To help teleoperators affected by voice disorders different phonoaudiological interventional modalities can be applied, whether applied in individual or group format (RIBEIRO et al.,2012). It is possible to classify the interventions in relation to the approach, therapeutic, such as: a) direct, in which are provided a modification in the physiology of the voice with vocal exercises; b) indirect, focusing on understanding the correct use of voice, in addition to adjustments of ergonomic, psychological and environmental factors that can lead to vocal impairment and the use of strategies to reduce the influence of such factors; c) eclectic, the result of the association of the previous approaches (PASA et al., 2007)

In view of the above, this chapter aims to discuss the effects of an intervention proposal in vocal health for teleoperators of a call center to police emergencies.

2 | METHODS

The present research has an explanatory, field, quantitative and intervention character, approved by the Research Ethics Committee of the Health Sciences Center of the Federal University of Paraíba on May 28, 2021, under process number 0532/14 and CAAE:36516514.0.0000.5188.

The research was developed in a police emergency call center, in which a total of 10 teleoperators participated, formed by a group with firemen, military and civil police officers. To obtain voice-related data we used the following instruments: a) Questionnaire “Vocal Profile of Telemarketing Operator” (PVOT), made up of 29 questions about personal, functional, organizational, environmental and vocal aspects; b) Questionnaire of Vocal Health and Hygiene (QSHV), made up of 31 items for assessing the level of knowledge about vocal health and hygiene.

To collect the speech sample in the pre- and post-intervention period, and later on the perceptual-auditory evaluation, the corpus consisted of the emission of the sustained vowel

/ɛ/ and passages of semi-spontaneous speech. The samples recorded in an acoustically treated environment with a professional unidirectional headset microphone (Logitech) were recorded with FonoView® software (CTS Informática, version 4.6 h) using a sampling rate of 44100.

The samples obtained were edited and sent for analysis by three speech therapists specialized in voice and experienced in using the GRBASI scale (DEJONCKERE et al., 1996). With perceptual-auditory evaluation it was possible to assess the vocal quality of each teleoperator, from the point of view of the overall grade of the evaluation.

The teleoperators participated in 7 interventional meetings lasting approximately 60 minutes each meeting. In the first and seventh meeting data collection involving the application of the PVOT, QSHV and voice sample collection took place, in addition to the post-intervention evaluation there was a new collection two months after the end of the program. Between the second and the sixth meeting eclectic interventions were applied, called “vocal health workshops”.

In each workshop moment the volunteers were grouped in groups of three to four teleoperators, and the workshoppers combining direct and indirect approaches mediated the activities in the training. Indirect tools were used for therapeutic interaction, knowledge enhancement, pedagogical and counseling interventions, with an average duration of 30 minutes, and direct tools such as auditory, vocal function, musculoskeletal, somatosensory and respiratory interventions, with an average duration of 30 minutes. Direct therapy involved the performance of exercises using various techniques aimed at phonation and vocal expression with an average duration of 30 minutes.

The data obtained were tabulated in Microsoft Office Excel 2010 software. For recording in the database, the PVOT questionnaire questions were categorized, the answers “never”, “rarely” and “don’t know” were grouped as absence, and the answers “sometimes” and “always” were grouped as “presence”.

Subsequently, the variables were analyzed descriptively (absolute and relative frequency, mean and standard deviation) and inferentially with the use of Kappa tests, to observe the inter and intra-judge reliability in the perceptual-auditory analysis of the vocal samples. Moreover, the chi-square test was applied to verify the association between the pre- and post-intervention periods, symptoms and vocal sensations, besides the vocal quality through the perceptual-auditory analysis and Pearson’s correlation test, to correlate correct answers in the QSHV, symptoms and vocal sensations, for such we used the statistical software R, version 2.11.0. with a significance level equal to 5%.

3 | RESULTS AND DISCUSSION

From the data found with the application of questionnaires and perceptual-auditory analysis of the samples we compared the vocal aspects of all teleoperators with and without complaints of voice disorder before and after the intervention program. Of the 10 teleoperators we noticed a predominance of females, n=8 (80.00%), with age of 34.8 years and a mean time of service of 6.4 years.

Women have a greater tendency to develop voice problems because their laryngeal configuration, which has a reduced glottal proportion, favors a greater impact between the vocal folds during phonation (CIELO; BEBER, 2012).

The volunteers' workload is made up of shifts of 12 hours a day followed by two days off, from Monday to Sunday, totaling 36 (thirty-six) hours a week, which may sporadically be added to overtime. This data becomes worrisome, because the long and excessive workload can impair vocal function, and consequently contribute to the development of possible DVRT.

As far as occupational conditions are concerned, the operators most frequently reported the stressful work rhythm (100%), strong noise in the company (100%), unsatisfactory acoustics (20.00%), dust (100%) and echo (70.00%) in the workplace.

Teleoperators when working under stressful conditions present a higher average of vocal and sensory symptoms than the group that does not work under such condition (SANTOS et al., 2016). The stressful work rhythm can influence the daily social relations of the teleoperator, since they are subjected to calls with demands that require a constant state of attention, speed, objectivity, the use of more than one interface of the technology systems and clarity in attendance (ARAÚJO, 2013)

The presence of very high environmental noise highlighted by the participants is one of the frequent occupational risk factors among call centers, due to this element the teleoperator is motivated to apply inadequate vocal adjustments, such as elevation of their speech intensity (MOREIRA et al.,2010). Thus, acoustically adequate work environments, clean and with good ergonomic structures avoid the triggering of possible voice disorders (CIELO; BEBER, 2012).

As for the analysis of the pre-intervention QSHV 3 teleoperators had dysphonia, based on the cutoff value established to separate dysphonic from vocally healthy individuals. Post-intervention, none of the subjects had a cut-off value below the established value, and the overall sum showed an upward trend, suggesting an increase in the level of knowledge about vocal health and hygiene among teleoperators. According to Hazlett and Moorhead (2011), voice professionals after receiving some voice training acquire knowledge and awareness about the proper use of the voice.

When compared to the prevalence of vocal symptoms and laryngopharyngeal

sensations alone at the pre- and post-intervention program, there was a significant reduction for almost all symptoms post-therapy, as shown in Table 1.

Self-reported vocal symptoms		Moment				p-value	Laryngo-pharyngeal sensations		Moment				p-value
		Pre-Therapy		Post-Therapy					Post-Therapy		Pre-Therapy		
		n	%	n	%				n	%	n	%	
Hoarseness	A. P.	0 10	0,00 100	8 2	80,00 20,00	0,0001*	Sore throat	A. P.	3 7	30,00 70,00	9 10	90,00 10,00	0,006*
Voice Loss	A. P.	3 7	30,00 70,00	10 0	100 0,00	0,001*	Sand in throat	A. P.	5 5	50,00 50,00	10 0	100 0,00	0,010*
Voice cracks	A. P.	1 9	10,00 90,00	7 3	70,00 30,00	0,006*	Sore throat	A. P.	3 7	30,00 70,00	9 1	90,00 10,00	0,006*
Shortness of Breath	A. P.	4 6	40,00 60,00	8 2	80,00 20,00	0,068	Cough	A. P.	1 9	10,00 90,00	6 4	60,00 40,00	0,019*
Thin Voice	A. P.	4 6	40,00 60,00	8 2	80,00 20,00	0,068	Dry cough	A. P.	0 10	0,00 100	8 2	80,00 20,00	0,0001*
Thick Voice	A. P.	2 8	20,00 80,00	9 1	90,00 10,00	0,002*	Cough with phlegm	A. P.	1 9	10,00 90,00	10 0	100 0,00	0,0001*
Thin/thick voice	A. P.	3 7	30,00 70,00	9 1	90,00 10,00	0,006*	Pain when speaking	A. P.	5 5	50,00 50,00	10 0	100 0,00	0,010*
Weak voice	A. P.	3 4	30,00 40,00	7 3	70,00 30,00	0,074	Pain when swallowing	A. P.	5 5	50,00 50,00	9 1	90,00 10,00	0,051
							Difficulty swallowing	A. P.	5 5	50,00 50,00	8 2	80,00 20,00	0,160
							Sore throat	A. P.	2 8	20,00 80,00	7 2	70,00 20,00	0,025*
							Catarrh in the throat	A. P.	2 8	20,00 80,00	8 2	80,00 20,00	0,007*

							Dry throat	A. P.	1 9	10,00 90,00	6 4	60,00 40,00	0,019*
							Tiredness when speaking	A. P.	2 8	20,00 80,00	5 5	50,00 50,00	0,0160*
							Straining when talking	A. P.	2 8	20,00 80,00	7 3	70,00 30,00	0,025*

Legend: A(Absent); P(Present); Chi-square test - *p<0,05.

Table 1 - Numerical (n) and percentage (%) distribution of self-reported vocal symptoms and laryngopharyngeal sensations by teleoperators

Source: Prepared by the authors (2021).

Voice disorders can be justified by the behavior of vocal misuse and abuse. These professionals, in general, often complain of dryness in the throat, tiredness to speak, effort, hawking, coughing, voice loss and failure, hoarseness, burning and foreign body in the throat. These symptoms can be related to unfavorable environmental conditions and work organization, for example, the use of air conditioning, which causes dryness of the laryngeal mucosa, the presence of excessive environmental noise, improper furniture, or factors linked to the individual's own behavior, such as muscle tension, lack of respiratory support, altered posture, alcoholism, smoking, little water intake, improper diet, among others (HAZLETT, MOORHEAD, 2011; AMORIM et al, 2011; SANTOS et al., 2016; GIRARDI et al., 2017).

The most frequent vocal symptoms by teleoperators were: hoarseness, voice failure, thick voice, and voice loss, while the most self-reported sensations were: hawking, dry cough, cough with phlegm, and dry throat. Thus, the data obtained converge with the vocal characterization presented in the literature regarding teleoperators (OLIVEIRA; BEHLAU; GOUVEIA, 2009; CIELO; BEBER, 2012; ARAÚJO, 2013) The study conducted with 27 patients when comparing the auditory, proprioceptive and total symptoms pre- and post-therapy of group of patients with dysphonia reported a decrease in total symptoms after the intervention (VITAL et al.,2016).

When analyzing the pre-intervention period it is observed that eight participants had a mild degree of vocal deviation, while at the post-intervention time there was a reduction to six, of which only 1 remained in a moderate degree indicative of vocal deviation. The acoustic and aerodynamic evaluations of the voice complement the perceptual-auditory evaluation, due to the greater sensitivity to changes in vocal patterns (SIMBERG et al., 2006; LAW et al., 2012; RIBEIRO et al., 2013).

The speech therapy intervention combining direct and indirect guidance resulted in positive individual modifications in the post-intervention period. Participants in the

workshops demonstrated an increase in voice knowledge and care. Through the workshops of voice experience that took place in the company and during the service period, these teleoperators attributed a greater appreciation to their work instrument.

The dynamics of group therapy allowed the participants to interact by sharing experiences and knowledge, in which one motivated the other to perform vocal exercises and stretching exercises in their work routine. In general, the context of the workshops was one of welcoming and motivation for participation and better adherence to the therapeutic proposal. Thus, individuals participate more actively in the rehabilitation process, which corroborates the significant reduction of vocal symptoms and vocal quality.

Therefore, the group interventions have been presented as a very effective strategy in the treatment of voice, providing participants with better capacity for self-perception and identification of vocal symptoms, as well as strategies to remedy the voice problem. (ALMEIDA et al., 2015).

4 I CONCLUSION

Thus, the proposed intervention program promoted changes in the perception of vocal health and knowledge about care to maintain healthy vocal patterns. As well as, real changes were identified in the vocal characteristics regarding symptoms and self-reported vocal sensations between the interventional interval, which were observable from the perceptual-auditory point of view.

The group intervention proposal proved to be effective, and, therefore, we recommend its discussion around strategies that aim at healthy working conditions for teleoperators. Still, it is important to encourage callcentersinvestments in health promotion programs, so that they can act in the prevention of diseases and care services to these professionals.

The workshops aimed to promote individual awareness to reduce inappropriate vocal habits, which resulted in the reduction or absence of inappropriate vocal symptoms.

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CAPÍTULO 13

PHONETIC VARIATION OF THE REGIONAL ACCENT IN TELEJORNAL PRESENTERS: AN EVALUATION THROUGH VOCAL PROFILE ANALYSIS SCHEME

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ABSTRACT: The accent of the TV news presenter has been changing over time and is closer to the viewer. **Objective:** to describe the variation in phonetic and vocal accent adjustments in three prime-time newscasters from three different stations in the state of Paraíba, between 2014 and 2020. **Methods:** observational and descriptive study, with retrospective temporal directionality and qualitative approach. The sample consisted of two news excerpts, from three female TV news presenters linked to the three main television stations in the state of Paraíba, in the time frame from 2014 to 2020. The instrument used in this research was the Vocal Profile Analysis Scheme (*VPAS*-PB), adapted by Camargo and Madureira (2008) for Brazilian Portuguese. **Results:** in supralaryngeal adjustments, only presenter 1 changed more markedly the position of lips, tongue, jaw, general muscle tension and phonatory aspects. In vocal dynamics adjustments, low pitch, increased loudness and fast speech rate were common among the presenters. **Conclusion:** There was a change in the phonetic and vocal adjustments of the accent in the three presenters when comparing the two time frames. Lips stretched and with ample extension, increase in the extension of the mandible, retracted tongue body and increased tongue extension, pharyngeal constriction, low position of the larynx, low habitual pitch, increased habitual loudness and rapid speech rate were the main adjustments that underwent modification.

KEYWORDS: Phonetics, Voice, Journalism, Television.

1 | INTRODUCTION

Communication is an indispensable tool for the newscaster, who uses it to transmit information in an understandable way to the audience, in order to attract their maximum attention. As a science that studies human communication, Speech Therapy has been contributing from the formation to the counseling of these professionals, aiming to guide the vocal health and improve verbal communication and body expression (PÉREZ-RAMOS, 1990; AZEVEDO; FERREIRA; KIRILLOS, 2009).

Since the 1970s it is noticeable that these professionals have a more formal communicative profile, with emphasis on tonic syllables, excessive use of pauses and little vocal modulation. This uniform pronunciation aimed at minimizing speech characteristics that could hinder the content of the news (COTES, 2005). Thus, this accent pattern became a style recommended by the job market and also became more accepted by the listening public (LOPES et al., 2013; RAMOS; LIRA.; ROAZZI, 2015).

Currently, the formal accent of the news anchor has been changing and his speech is increasingly closer to the viewer. Studies show an appreciation for a more colloquial, expressive, natural, less artificial and stereotyped narration, however, without losing the markers of professional communication. This new format in journalism is enabling a greater connection of empathy with the viewer, but without giving up qualifiers such as credibility, reliability, objectivity, and authenticity (SANTOS et al., 2014; PENINI et al., 2018).

This change in accent can be attributed to the rapid technological growth by which has introduced significant modifications in the way journalistic information is produced, conceived and narrated, as well as the innovation of the work environment with modern scenarios, materials, resources and dynamics that provide direct interaction with the public (COUTINHO, 2009; SILVA; PENTEADO, 2014). These modifications began to emerge already in the first decade of the 2000s, with the popularization of the web and the emergence of other audiovisual content media leading the news programs to adhere to new ways of attracting the audience, thinking of a less formalistic and more relaxed performance (BELÉM; CIRNE, 2017).

Considering the great changes occurred in the accent of telejournalism, as well as the reduced number of studies that explain this new process, it was proposed the elaboration of a study for a better understanding about the communication of telejournalism presenters. Therefore, the following question was established: what changes in phonetic and vocal adjustments observed in Paraíba's newscasters can evidence the change in accent?

Changes in the speech pattern can be explained through phonetic analysis of supralaryngeal adjustments and vocal dynamics by providing perceptual-auditory data that clarify these changes (CAMARGO; MADUREIRA, 2008). Thus, knowing that such information is essential for the foundation of phonoaudiological action in the advice of these professionals, this study aims to describe the variation of phonetic and vocal adjustments of the accent in three women presenters of prime time television news from three different stations in the state of Paraíba, between the years 2014 and 2020.

2 | METHODS

This is an observational and descriptive study, with retrospective temporal directionality and qualitative approach.

The corpus of this research includes the analysis of two news excerpts (one from 2014 and another from 2020), from three female news anchors, linked to the three main television stations in the state of Paraíba.

The instrument used in this research was the Vocal Profile AnalysisScheme (VPAS-PB), authored by Laveret al. (1981) and adapted to Brazilian Portuguese by Camargo and Madureira (2008). The VPAS-PB is based on analyses of articulatory, physiological, acoustic and auditory adjustments carried out by phoneticists and speech therapists based on their perceptual ability to evaluate vocal quality as a combination of complementary adjustments, of phonatory (laryngeal) and articulatory (supralaryngeal) nature (CAMARGO; MADUREIRA, 2008).

The VPAS script covers two levels of perceptual-auditory analysis: one of vocal quality: laryngeal adjustments (phonatory), supralaryngeal (articulatory) and muscle tension, and another of vocal dynamics: pitch, loudness, elocution rate and other elements such as respiratory support. In addition, the instrument uses a six-point scale, classifying vocal adjustment from moderate (grade 1 to 3) to extreme (grade 4 to 6). In this study we selected for descriptive analysis the supralaryngeal and vocal dynamics adjustments, because they are closer to the research objective.

Initially, a search was conducted as to the time of the largest audience on broadcast TV, and according to " Media Data" (2019) prime time holds the largest number of viewers with TVs turned on throughout the country.Subsequently, it was verified which are the main broadcasters with the highest IBOPE in the state through the news reports available by the Jornal Digital Portal Correio (2019) and Jornal da Paraíba (2019) and from this three stations were chosen whose nightly news programs are coincidentally presented by women, so the sample of this study consisted of this gender.

Table 1 below describes the selected subjects, their news programs, stations and shifts:

Journalist	TV News	Broadcaster	Shift
Presenter 1	Tambaú da Gente	TV Tambaú	Night
Presenter 2	JPB2ª Edição	TV Cabo Branco	Night
Presenter 3	Jornal da Correio	TV Correio	Night

Table 1 - Sample Description

Source: survey data, 2020.

The choice of the sample excerpt was based on a neutral style news call, since neutral content allows for a more stable prosody (PANICO, 2005). The selected videos were located in an online digital platform, free of charge, and contemplated a period between

2014 and 2020. The choice of this period is based on the year of publication of the study by Lopes et al. (2013), p. 480, through which it was observed that the softened accent of the TV journalist from Paraiba was more accepted by the listening public.

As for the selection of the material, it was prioritized the presenter in the upright body posture at the moment they narrated the news, because it is the one that promotes the best sound production (CANEIRO; TELES, 2012). And the environment where the sample was collected occurred in the respective recording studios, without the interference of external and/or environmental noises (CALDEIRA; VIEIRA; BEHLAU, 2012).

The samples were collected in the following years: presenter 1 (2017-2020); presenter 2 (2015-2020); presenter 3 (2016-2020). The differences in the collection occurred for two reasons, first by the time of performance in the role of telejournalist, presenters 1 and 3 were reporters between the years 2014 and 2015 and it is known that the vocal dynamics of the reporter can be affected by the presence of environmental noise (CALDEIRA; VIEIRA; BEHLAU, 2012). The second reason was due to the changes of broadcaster, time and function and this could have biased the research.

The selected videos were converted into audio (MP3 format) also in digital platform online and free and edited in Audacity Software (version 2.4.2). The selected part was edited, standardized and finally analyzed in consensus by two judges, speech therapists and trained in the VPAS-PB script. The data were presented in tables and described qualitatively.

3 | RESULTS AND DISCUSSION

Historically, the formal or soft accent was extremely valued in the speech of telejournalists and brought a standard of narration free of regional marks (OLIVEIRA, 2001; LOPES et al., 2013). Currently the accent has been changing and the phonetic and physiological understanding can bring significant contributions to the phonoaudiological performance in the communicative advice with the telejournalists.

The use of the VPAS script in accent assessment was first recorded by Lima et al. (2007). This study evaluated the vocal quality of speakers from João Pessoa (non-voice professionals and without vocal alteration), which showed a predominance of receded tongue body settings in males, and of receded and lowered tongue body settings in females (LIMA et al., 2007).

In this research the accent of the three TV news anchors was analyzed through this script qualitatively, the data are explained below in two sections: supralaryngeal adjustments and vocal dynamics adjustments.

I Supralaringeal Adjustments

PRESENTER 1 – (A1)					
MOMENT 2017			MOMENT 2020		
ELEMENTS	**SETTINGS**	**DEGREE**	**ELEMENTS**	**ADJUSTMENTS**	**DEGREE**
LIPS	Enlarged Extension	3	**LIPS**	Stretched Labiodentalization Increased extension	2 3 5
MANDIBLE	Enlarged Extension	3	**MANDIBLE**	Increased extension	5
TONGUE TIP	Advanced	4	**TONGUE TIP**	Advanced	3
TONGUE BODY	Lowered Extended reach	1 3	**TONGUE BODY**	Retreated Increased extension	3 5
PHARYNX	Constriction	3	**PHARYNX**	Constriction	4
VELOFARINGE	Nasal	3	**VELOFARINGE**	Nasal	3
LARYNGE	Lowered	2	**LARYNGE**	Lowered	2

PRESENTER 2- (A2)					
MOMENT 2015			MOMENT 2020		
ELEMENTS	**SETTINGS**	**DEGREE**	**ELEMENTS**	**SETTINGS**	**DEGREE**
LIPS	Extended	4	**LIPS**	Stretched Increased Extension	3 4
MANDIBLE	Protracted	3 3	**MANDIBLE**	Protracted	3 4
TONGUE TIP	Extended Extension	2	**TONGUE TIP**	Extended	2
TONGUE BODY	Advanced	2 4	**TONGUE BODY**	Advanced	3 5
PHARYNX	Stepped back	3	**PHARYNX**	Pulled back	4
VELOFARINGE	Extended reach	1	**VELOFARINGE**	Extended reach	1
LARYNGE	Constriction	2	**LARYNGE**	Constriction	2

PRESENTER 3- (A3)					
MOMENT 2016			MOMENT 2020		
ELEMENTS	**SETTINGS**	**DEGREE**	**ELEMENTS**	**SETTINGS**	**DEGREE**
LIPS	Rounded Extended	3 3	**LIPS**	Rounded Extended	3 4
MANDIBLE	Protracted Extended	3 3	**MANDIBLE**	Protracted Extended	3 4
TONGUE TIP	Advanced	2	**TONGUE TIP**	Advanced	2

TONGUE BODY	Stepped back Extended Extension	3 3	**TONGUE BODY**	Stepped back Extended Extension	4
LARYNGE	Lowered	4	**LARYNGE**	Lowered	5

Legend: Dedree (1 to 3) - moderate; Degree (4 to 6) - extreme.

Table 2 - Supralaringeal adjustments observed in the two news excerpts.

Source: research data, 2020.

In Table 2 it is possible to observe that A1, in 2020, changed markedly all supralaryngeal adjustments, especially stretched lips (grade 2), lipiodentalization (grade 3), increased mandible extension (grade 5), increased tongue body extension (grade 5), retracted tongue (grade 3), and extreme pharyngeal constriction (grade 4). The other presenters maintained the same adjustments, sometimes reducing in some, sometimes accentuating in others. A2, in 2020 presented stretched lips (grade 3), extreme pharyngeal constriction (grade 4), increased tongue tip indentation (grade 3), tongue body extension (grade 5) and jaw extension (grade 3).

On the other hand, A3 increased lip extension (grade 4), jaw extension and tongue body extension (grade 4), and further intensified the low laryngeal position (grade 5). The low larynx was a common feature among them, however A3, due to the rounded lips setting increased the degree of the lowering of the larynx and differentiated herself among the other telejournalists who maintained stretched lips settings.

In a general context, we noticed that A1 and A2 in 2020 presented a more similar change in phonetic adjustments, the stretched lips with smiling narration, increased lip and jaw extension, advanced tongue tip, indented tongue body conferred a more intense overarticulation of the news, to the detriment of previous years, and reveal this modification.

The dynamism that has been gaining the telejournalism in recent decades inserts modifications in the body, vocal and linguistic expressiveness of telejournalists, with the increase of postures and movements they start to adapt to the new demands of expressiveness with more naturalness, dynamism and spontaneity (PENTEADO; GASTADELHO; SILVA, 2014).

II Vocal Dynamics Adjustments

PRESENTER 1 – (A1)					
	MOMENT 2017			**MOMENT 2020**	
ELEMENTS	**SETTINGS**	**DEGREE**	**ELEMENTS**	**SETTINGS**	**DEGREE**
PITCH	Usual Down	2	***PITCH***	Usual Down	1
	Increased Variability	2			
LOUDNESS	Usual Increased	1	***LOUDNESS***	Usual Increased	4
	Increased Variability	3		Increased Variability	4
ELOCUTION RATE	Fast	3	**ELOCUTION RATE**	Fast	5
RESPIRATORY SUPPORT	Inadequate	1	**RESPIRATORY SUPPORT**	Inadequate	1
PRESENTER 2- (A2)					
	MOMENT 2015			**MOMENT 2020**	
ELEMENTS	**SETTINGS**	**DEGREE**	**ELEMENTS**	**SETTINGS**	**DEGREE**
PITCH	Usual Down	1	***PITCH***	Usual Down	1
	Increased Variability	3		Increased Variability	4
LOUDNESS	Usual Increased	3	***LOUDNESS***	Usual Increased	4
	Increased Variability	3		Increased Variability	4
ELOCUTION RATE	Fast	4	**ELOCUTION RATE**	Fast	4
PRESENTER 3- (A3)					
	MOMENT 2016			**MOMENT 2020**	
ELEMENTS	**SETTINGS**	**DEGREE**	**ELEMENTS**	**SETTINGS**	**DEGREE**
PITCH	Usual Down	2	***PITCH***	Usual Down	2
	Increased Variability	3		Increased Variability	1
LOUDNESS	Increased Variability	3	***LOUDNESS***	Increased Variability	1
ELOCUTION RATE	Fast	4	**ELOCUTION RATE**	Fast	4

Table 3 - Vocal dynamics adjustments observed in the two news excerpts.

Source: survey data, 2020.

Table 3 shows the aspects of vocal dynamics by which it is noticeable in the three female presenters a lowered habitual pitch (bass), with increased variability, increased loudnesshabitual (A1 and A2) and a fast elocution rate. The pitch can be justified by the low laryngeal position, although the larynx in females is in a higher position than in males due to physiological aspects, the lowering of it, as observed in the female journalists is

explained by the literature as a more fluid pattern for emission and this occurs because it is associated with inspiration and glottal opening by which triggered an abductor component in the lowering gesture, making the voice softer and more comfortable (BRAZIL; YAMASAKI; LEÃO, 2005).

Another factor is that the stretched lip settings shorten the vocal tract while the rounded lips make it longer, therefore, the long vocal tract amplifies the formants in the bass regions and this favors a more muffled vocal quality. The short and narrow configuration amplifies the formants in high frequencies, favoring a strident voice, thus the difference in larynx size is responsible for variations in fundamental frequency and pitch (CAMARGO, 2002).

The increased loudness and fast elocution rate were also relevant adjustments and these same elements were also observed in the neutral reporting style when analyzed in open channel broadcasters, thus corroborating the findings of DIAS et al. (2015), however the increased loudness observed in A1 and A2 may also be associated with intense overarticulation (Table 3) and the stretched lips adjustment (Table 2). It is known that the posture, tone and mobility of phonoarticulatory organs directly influence articulation, vocal projection and laryngeal and pharyngeal adjustments; therefore, they have a broad relationship with vocal quality and the resonance system (OLIVEIRA, 2004).

Given the above, the results corroborate in some points with the literature which presumes for the telejournalist a deep voice with medium intensity, diffuse resonance, precise articulation, medium speed, employment of pauses and variable modulation in order to transmit clarity, naturalness, authenticity, originality, spontaneity and credibility in the process of building the news (COTES; KYRILLOS, 2011; KYRILLOS; TEIXEIRA, 2014)

Excessive adjustments, as seen earlier, such as overarticulation, intense loudness, air leakage and vocal harshnesscan be redirected from speech therapy intervention programs for professional television communication, which have satisfactory results in the integrated improvement of body, emotional, interpretation and speech aspects (SANTOS; FERREIRA; SILVA, 2019).

4 | CONCLUSION

There was a change in the supralaryngeal and vocal accent adjustments in all three presenters from the VPAS instrument. Stretched lips with wide extension, increased jaw extension, retracted tongue body and increased extension, pharynx constriction, low laryngeal position, low pitch habitually, increased loudness habitually, and fast elocution rate were the main adjustments that changed respectively, when comparing qualitatively the initial years to the year 2020.

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CAPÍTULO 14

DIGITAL INFLUENCERS: ANALYSIS OF EXPRESSIVENESS AND THE CONTRIBUTION OF COMMUNICATION TO THE CONSUMER MARKET IN THE CITY OF JOÃO PESSOA

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ABSTRACT: Expressiveness is one of the key tools for the subject to communicate his intentions and the listener to interpret them, since the information from this interaction is full of meaning. It's not just about what to communicate, but how to communicate and to whom to communicate. As speech can assume different interfaces and that these can be strategic according to their use/purpose. When realizing the importance of social networks in the communication of the modern world, it is necessary to take a different look at new communication professionals. The digital age has brought new perspectives in the field of marketing that have made digital influencers protagonists of several markets, among them, fashion. **Objective:** contribute to a more detailed understanding of the expressiveness resources used by digital influencers in the city of João Pessoa (Paraíba) and their relationship to consumer behavior through Instagram, a social network that has stood out as an important tool in the fashion industry. **Methods:** this is a retrospective, observational, qualitative-descriptive research. The sample consisted of three local digital fashion influencers, residing in the city of João Pessoa, who use the social network Instagram as a working tool. The data from the videos were analyzed with the help of the Speech-Language Pathology Guide for Observation of Expressiveness (RoFOE). **Results:** some similar patterns were found among the three influencers, such as security, trust and naturalness in speech, through captivating communication. As for expressiveness, there is a difference between vocal quality and verbal and non-verbal aspects, each imprinting its own identity. **Conclusion:** From the analysis, it was possible to observe that expressiveness is a necessary resource for this new field of professional activity, because it is with it that influencers will reach the target audience effectively and efficiently, and thus be able to sell the proposed product.

KEYWORDS: Communication, Consumer Behavior, Internet, Social networks.

1 | INTRODUCTION

Communication is the object of study of Speech Therapy in its various aspects, and the concept of expressivity can be highlighted as a level of information in this process. Thus, expressivity is one of the key points for the subject to communicate his or her intentions, and for the message to reach the listener in an effective way. In addition, the individual carries in his speech characteristics and patterns of the society in which he lives. It is not only about what to communicate, but how to communicate and to whom to communicate, since speech can take on different interfaces and these can be strategic according to its use/purpose (BELLER, 2008).

The expressivity of communication professionals can be analyzed from a speech therapy perspective in a diverse and integrated way, but this chapter is based on the concepts of (FERREIRA, 2010; PENTEADO; PECHULA, 2018), which considers: verbal expressivity, such as textual content, vocal/oral expressivity (voice, articulation, modulation, speech rhythm, pitch, loudness, resonance, prosody) and non-verbal expressivity, such as gestures and facial expression.

Realizing the importance of social networks in communication in the modern world makes it necessary to take a different look at the new communication professionals. The Internet has enabled new changes in the marketing area, offering subsidies for digital marketing, enabling digital influencers who are protagonists in several markets, among these, the fashion market. What happens is that the information, instead of being disseminated directly by the brand/store, starts to happen through the digital influencer, who transmits it in a more personal, filtered and directed way to his followers (FERNANDES, 2018).

It is worth noting that fashion encompasses style, personality, attitude, glamour, money, and over the years it also assumes the form of communicating and, more than that, a way of claiming and expressing oneself. This way, the character of proximity and identification among its followers and digital influencers added to the new market modality, commercial use through social media, constitutes the most impacting revolution in human communication (SAAD, 2003).

According to a retail survey conducted by PricewaterhouseCoopers (PwC) in 2015, 77.00% of Brazilian consumers have already been influenced in their purchasing decisions by information obtained through social networks. A significant number and above the global average, which reflects the importance of social interactions in the current consumption model, demonstrating how receptive they are to new ideas, suggestions and recommendations.

In view of this, virtual environments are no longer seen only as relationship networks

and started to be seen also in a commercial perspective, companies began to position themselves in social networks strategically in order to influence consumer behavior, thus revolutionizing the way of marketing and consuming in society (HANNA; ROHM; CRITTENDEN, 2011).

One of the most prominent social networks today is Instagram. The application, whose main function is sharing photos and videos, has been used intensively, especially in the fashion world, generating business for companies and users. This platform stands out in the fashion segment, which works strategically with people's desires and aspirations, being efficient in creating the visual identity of professionals and companies. And in this pandemic period, this Instagram tool was essential for shopkeepers to maintain their online sales (HINERASKY, 2014).

Despite the growing interest in digital influencers in the recommendation and dissemination of brands, products and trends in the fashion world, few studies have analyzed how the expressiveness of these professionals who build a bond with their followers and influence choices through the suggestions offered by them can be characterized.

The study aimed to contribute to a more detailed understanding of the expressiveness resources used by digital influencers in the city of João Pessoa and its relationship in the consumption behavior through Instagram, a social network that has stood out as an important tool in the fashion industry.

2 | METHODS

The present study is a retrospective, observational, qualitative-descriptive research. According to Augusto et al (2013), qualitative research allows content analysis in a set of techniques for analyzing communications, aiming systematic and objective procedures to describe the content of messages. The data collection was performed with public domain material through the social network Instagram, and the approval of the ethics committee was waived.

The sample was composed of three local fashion digital influencers, residing in the city of João Pessoa (Paraíba -PB), who use the social network Instagram as a work tool. Influencer 1, Rafaella Gadelha (@rafinhagadelha) with 622 thousand followers, Influencer 2, Renata Uchôa (@reuchoam) with 479 thousand followers and Influencer 3, Achadinhos da Nega, by Diene Toscano (@dienetoscano), with 231 thousand followers.

The data collection was carried out on the social network Instagram, through the videos published in the stories and IGTV of the digital influencers selected for this study, being divided into three main steps. The videos were analyzed by 6 evaluators, including the author of the script used in this study.

The first stage of the study consisted of accessing the Instagram of each influencer to

verify the number of followers and the types of content offered. After checking the Instagram profile, the researchers chose 30-second videos in which they had a full body talking about some product.

In the second stage, each evaluator did her evaluation individually, following the Speech-Language Pathology Script for Observing Expressiveness (RoFOE)(SANTOS, 2019; SANTOS; FERREIRA, 2019). The script is divided into two sessions: the first part is the analysis of the communication impact, i.e., to evaluate questions about speech and what it conveys, for example, to observe whether the influencer speaks naturally, conveys safety, is convincing, among other aspects; the second session contemplates the analysis of expressiveness, for example, the vocal, verbal and non-verbal aspects used by the research participants.

In the third moment, there was a group discussion among the evaluators about each aspect evaluated by the study participants, and also the construction of a single chart for each participant with the results found in the analysis. Also in the third stage, the evaluator who wrote the script did her analysis and made her final considerations, resulting in the table presented in the results. The data collected from the videos were recorded in a spreadsheet and analyzed qualitatively, considering the RoFOE data.

Each digital influencer analyzed in this study was identified throughout the text with specific acronyms to improve the reader's understanding. They are: Influencer 1 - I1; Influencer 2 - I2; Influencer 3 - I3.

3 | RESULTS AND DISCUSSION

Considering the Speech-Language Pathology Guide for Observation of Expressiveness (RoFOE) (SANTOS, 2019; SANTOS; FERREIRA,2019) some similar patterns were found among the three influencers, such as security and naturalness in speech, as well as demonstrated self-confidence and firmness through captivating communication. The RoFOE showed relevant level of applicability, reproducibility and high coefficient of stability and internal consistency, constituting itself as an important instrument for the use of the speech therapist in therapeutic care or advice to voice professionals (SANTOS, 2019).

Regarding expressiveness, the participants differentiate between vocal quality and verbal and non-verbal aspects, imprinting their identity. As for vocal quality, they use it in a positive way attending to the professional activity, both in pitch and loudness, dissonant only as to resonance, with two of them hypernasal (Influencer 1 and 3) and only one with balanced resonance (Influencer 2) which does not bring repercussions as to their followers. The greatest variation in the analysis occurs regarding verbal aspects with variation in articulation, with only Influencer 1 being a little bit halting and the others precise; the pauses duration is divided in short and medium, as shown in Chart 1. The most varied point was

the speech rate, where each one presented a different variation: the first was medium; the second, increased, and the third decreased.

Initial impact of communication	Expressiveness Vocal quality	Expressiveness Verbal aspects	Expressiveness Non verbal aspects	Strengths
- it speaks naturally - It speaks with confidence - it is convincing - Appears to be agreeable - It presents engaging communication - It seems to understand the subject	- Draws attention in a positive way - Is able to meet professional activity - The pitch used meets professional needs - Loudness meets the usual professional situation - Balanced resonance	- Precise articulation - Medium pause - Duration of short pauses - Increased speaking speed - Natural Emphasis Features - Frequent emphasis: increased loudness and prolongation of syllables (e.g. Maaaravilhosa) - Speech presents features of orality - No vices in speech emission - Organized speech - Constructed Reading	- Lip, eye and eyebrow movements present (wearing glasses) - Maintains natural eye contact in different speaking situations - It can move naturally - Body movements are constant and synchronized with speech - Constructed reading	Use of hand movements hand movement

Table 1 - Analysis of the Influencer's expressiveness 1.

Source: survey data, 2020.

Among the frequent characteristics of emphasis, there was similarity in the elevation of loudness and prolongation of syllables, artifices that catch the attention and arouse interest, besides these, the up/down modulation was also used as a resource by both the influencer 1 and 3. In certain moments of the speech, there was the use of orality traits, such as the repetition of positive reinforcement words, as well as the omission of the final syllable, this one only evident in influencer 3, as explained in chart 3. Only inI3 were speech emission vices observed.

As for the non-verbal aspects, we have as frequent the fact that they move naturally and these are synchronized with speech, as well as the presence of lip, eye and eyebrow movements. As far as vices of expression are concerned, I1 moves her hair and I3 frequently uses her hands. The eye contact was different between them, since the former did not maintain natural eye contact, as she looked at her cell phone because she was filming herself in front of the mirror, while influencer 2 was wearing glasses, but directed her gaze to the camera in different speech situations; and the latter presented constant eye contact with the camera in different speech situations, as observed in Table 2.

Initial impact of communication	Expressiveness Vocal quality	Expressiveness Verbal aspects	Expressiveness Non verbal aspects	Strengths
- Speak natural; - Speaks with confidence - Is convincing - Appears to be agreeable - Presents engaging communication; - Seems to understand the subject;	- It attracts attention in a positive way; - It is able to meet the professional activity; - The pitch used meets professional needs; - Loudness meets the usual professional situation; - Hypernasal resonance.	- Articulation a bit locked; - Medium pause; - Short pauses; - Medium speech rate; - Natural emphasis features; - Frequent emphasis: loudness and prolongation of syllables, upward/ descending modulation; - Speech presents features of orality; - No vices in speech emission; - Organized speech; - Natural reading.	- Lip, eye and eyebrow movements present; - Does not maintain natural eye contact in different speaking situations (= only looks at cell phone); - Artificial expression (laughter); - Can move naturally; - Body movements are synchronized and constant with speech; - Movement/ gesture as a vice of expression: fiddling with hair (3x).	- Emphasis on loudness and modulation.

Table 2 - Analysis of Influencer Expressiveness 2.

Source: survey data, 2020.

Initial impact of communication	Expressiveness Vocal quality	Expressiveness Verbal aspects	Expressiveness Non verbal aspects	Strengths
- Speak naturally; - Speaks with confidence; - Is convincing; - Appears to be pleasant; - Presents captivating communication; - Seems to understand the subject.	- It draws attention in a positive way; - The vocal quality is able to meet the professional activity; -The pitch used meets the professional needs; - Loudness meets the usual professional situation; - Hypernasal resonance	-Precise articulation; - Medium pause; - Average pause duration; - Decreased speech rate; - Excessive emphasis features; - Frequent emphasis: loudness and prolongation of syllables, ascending/ descending modulation; - Speech shows traces of orality (with presence of omission of the final syllable and repetition “I’m a fan”); - Presents speech emission vices (The emission of the word “people”); - Organized speech; - Natural reading.	-Lip, eye and eyebrow movements present; - Maintains natural eye contact in different speaking situations; - Can move naturally; - Expression vices: frequent use of hands; - Body movements are synchronized and constant with speech.	Emphasis on loudness, prolongation of syllables and very regional speech, with an accent emphasized; -Much more popular speech, trying to get closer to the general public.

Table 3 - Analysis of the expressiveness of *Influencer* 3.

Source: survey data, 2020.

I1 emphasizes loudness and modulation, while I2 uses hand and body movements. Digital I3, on the other hand, emphasizes loudness, syllable prolongation, and regional speech, with an accent. Moreover, it was observed in I3 that, unlike her colleagues, she does not wear the clothes, but only holds them in her hands; her speech is much more popular, informal, and spontaneous, which brings her closer to the public in general, as seen in Chart 3.

Given the exponential growth of the Internet, it has opened doors to a new economy that has been creating a strong rise of the digital product, and as a result, has enabled virtual opinion makers to gather around their profiles audiences that are both global and segmented (LYONS; HENDERSON, 2005).

Some studies had already pointed out the lack of validated phonoaudiological assessment instruments that could be used with voice professionals (DINIS; GOUVEIA;XAVIER, 2011; ALEXANDRE; COLUCI, 2011; GURGEL; KAISER, 2016). However, the Speech Therapy Script of Expressiveness Observation - RoFOE(SANTOS, 2019; SANTOS; FERREIRA,2019) used in this study served as an effective guide in the evaluation of the expressiveness of the three digital influencers, because, it provided the analysis of all parameters in a targeted way in each participant with a high level of agreement between the evaluators mentioned in the methodology.

The digital influencers are, without a doubt, a part of the voice professionals of today that present diverse communication demands and their peculiarities. In this context, the speech therapy intervention can contribute a lot to the improvement of expressiveness, working on vocal quality, breathing, body posture, prosody and non-verbal aspects, in addition to working the whole communicative context in order to achieve specific goals (RODERO et al., 2018).

The importance of these professionals is notorious, which can be observed through the responses provoked in virtual social networks, since their posts generate significant likes, comments, shares and word of mouth, so that it is an excellent marketing tool for the company, which hires them at a low cost. In addition, the company follows a market trend that includes more and more consumers (CALDER; MALTHOUSE; MASLOWSKA, 2016).

This constitutes the main contribution of this work: to identify how it is possible to generate more engagement in virtual social network contexts with the use of expressivity. The expected results of this interaction are the engagement measures that reflect positive behavioral expressions for the consumer market (CALDER; MALTHOUSE; MASLOWSKA, 2016).

Expressiveness acts directly in enhancing and potentiating the effects of vocal and non-verbal resources when using it for a specific purpose, such as influencing someone about something (PENTEADO; PECHULA, 2018). The expressiveness can pass to the

listener both positive points such as confidence, dynamism and credibility in speech, as well as can convey a negative message, for example, insecurity and artificiality (SANTOS; FERREIRA, 2019).

In a practical way, the results of this research indicate a path for companies and brands to invest in these individuals as a decision alternative for the promotional mix. Besides emphasizing the importance of the role of expressiveness as the main tool for an effective and efficient communication to achieve the intended goal, in this case influencing people to buy something.

Considering the professionals evaluated in this research, it is suggested that Speech Therapy can help improve expressiveness, integrating aspects of verbal and non-verbal communication. Giving the necessary subsidies to make the communication of these professionals effective and efficient, besides advising on important aspects to develop an appropriate language for each specific objective in the influencer work.

4 | CONCLUSION

As an academic relevance, this research has great contribution to the increase of studies in the area of digital influencers, offering new perspectives of studies that evaluate the impact of these new opinion leaders as a way to expand the discussion on the subject. Managerially, this work is useful for companies that carry out actions with digital influencers as a way to plan the strategy used with these actions, as well as what they want to achieve with it.

Digital influencers show themselves as a promising strategy, based on their way of expressing themselves and attracting the desired audience, but it is necessary to verify the efficiency that such action would cause. From the analysis it was possible to observe that expressiveness (verbal, non-verbal and vocal resources) is a necessary tool for this new field of professional performance, because it is with the use of the resources of expressiveness that influencers will reach the target audience effectively and efficiently, and thus be able to sell the proposed product. A relevant limitation of this work was that it was not possible to measure the real influence of digital opinion leaders on their social networks for the economy and sales of the company that hired them, due to the lack of reliable tools for such measurement and the lack of access to personal profiles of these influencers.

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