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Accessibility for deaf persons to information on COVID-19 in the government´s official channels: a descriptive-exploratory study

Acessibilidade das informações sobre COVID-19 à pessoa surda nos canais do governo: estudo descritivo-exploratório

Accesibilidad de la información sobre COVID-19 para la persona sorda en los canales oficiales del gobierno: estudio descriptivo exploratorio

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ABSTRACT
Objective: To identify possibilities/conditions for deaf persons to access information related to the coronavirus pandemic available at the YouTube platform. **Method:** Descriptive-exploratory study analyzed vídeos available in the government´s oficial sites from March 2020 to March 2021. The research was centered on indicative aspects of accessibility in the communication (text captions and/or LIBRAS interpreter) in audio-visual contents. **Results:** Out of the 2.577 videos analyzed, some 60% presented partial accessibility (LIBRAS or text captions); about 30% offered no accessibility at all; and 9.8% offered text captions + LIBRAS. Therefore, the result proved low percentage of records of the expected condition for accessibility in communication (the presence of text captions and LIBRAS), as opposed to the high number of videos with no accessibility. **Conclusions:** Audio-visual resources are critical for the communication of deaf persons, and adequate conditions favor the access to information provided in video platforms. The theme is relevant, yet not sufficiently discussed, thus demanding further studies. Beyond the pandemic, widening this discussion in order to reduce and/or eliminate communication barriers is also required.
DESCRIPTORS: Health Education; Deafness; e-Accessibility.

RESUMO
Objetivo: Identificar possibilidades/condições de acessibilidade à pessoa surda sobre informações relacionadas à pandemia por coronavírus disponíveis na plataforma *You Tube*. **Método:** Estudo descritivo-exploratório analisou vídeos disponibilizados em sites oficiais do governo entre março/2020 a março/2021. Buscaram-se aspectos indicativos de acessibilidade na comunicação (Legendas e/ou Intérprete de Libras) nos conteúdos audiovisuais. **Resultados:** Dos 2.577 vídeos acessados, quase 60% apresentaram acessibilidade parcial (Libras ou legendas), aproximadamente 30% sem acessibilidade e, 9,8% apresentaram (legenda + Libras). Assim, a condição esperada à acessibilidade na comunicação (presença de legenda e Libras nos materiais audiovisuais) apresentou baixo percentual contrapondo-se ao elevado número de vídeos sem acessibilidade. **Conclusão:** Recursos audiovisuais são fundamentais na comunicação da pessoa surda e condições adequadas favorecem o acesso às informações circulantes nas plataformas de vídeos. A temática é relevante, mas ainda, pouco abordada necessitando outros estudos. Para além da pandemia, ampliarmos esta discussão visando reduzir e/ou eliminar barreiras comunicativas, é outra necessidade.
DESCRITORES: Educação em Saúde; Surdez; e-Acessibilidade.

RESUMEN
Objetivo: Identificar las posibilidades/condiciones de accesibilidad para la persona sorda sobre la información relacionada con la pandemia de coronavirus disponible en la plataforma *YouTube*. **Método:** El estudio descriptivo exploratorio analizó vídeos disponibles en los sitios web oficiales del gobierno brasileño entre marzo/2020 y marzo/2021. Se buscaron aspectos indicativos de accesibilidad en la comunicación (subtítulos y/o intérprete de lengua de señas) en los contenidos audiovisuales. **Resultados:** De los 2.577 vídeos a los que se accedió, casi el 60% presentaban una accesibilidad parcial (lengua de señas o subtítulos), aproximadamente el 30% ninguna accesibilidad y el 9,8% contaban con subtítulos y lengua de señas. Así, la esperada condición de accesibilidad en la comunicación (presencia de subtítulos y lengua de señas en los materiales audiovisuales) presentó un bajo porcentaje, en contraste con el alto número de vídeos sin accesibilidad. **Conclusiones:** Los recursos audiovisuales son fundamentales en la comunicación de la persona sorda y condiciones adecuadas favorecen el acceso a la información que circula en las plataformas de vídeos. La temática es relevante, pero aún poco investigada, por lo que requieren otros estudios. Más allá de la pandemia, ampliar esta discusión para reducir y/o eliminar las barreras de comunicación es otra necesidad.
DESCRIPTORES: Educación en Salud; Sordera; e-Accesibilidad.

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INTRODUCTION

The access to information in Health is crucial for citizens to exert their autonomy, and during the COVID-19 pandemic this came to be an urgent need in order to provide prevention measures against the Coronavirus. In order to grant this accessibility, one must take into account specific needs of each individual, particularly the handicapped (HCP), aiming at their autonomy and safety. The public power is responsible for creating promotion strategies and to put barriers down: "(…) urbanistic, architectonic, those of transports in general, but also communication and information barriers"[1].

The handicapped are those individuals with permanent deficiencies in different levels of severance. The deaf person has auditive loss (either unilateral or bilateral), but also assumes one language, and has cultural identity with a specific group[2].

Communication is highlighted in this study, mainly considering the accessibility related to the deaf person´s daily life, either as he/she looks for the production of health care, or when searching for random information on self-care in digital platforms. Therefore, communication may be considered "a means of interaction between citizens, which involves, among other options, the languages, there included the Brazilian Language of Signals - LIBRAS (*Língua Brasileira de Sinais*) and texts visualization"[2].

Libras may be defined as "a form of communication and expression in which the linguistic system of visual-motrice nature, with its own grammatical structure, constitutes a linguistic system for transmitting ideas and facts, originated in communities of deaf person in Brazil"[3].

Therefore, more than a practical ability for exerting social interactions, legislation granted the deafs a right that was to be fulfilled. That is, deaf persons communicate with the world, predominantly, using the vision, besides, for sure, the hands expression, when gestures turn into signals – LILBRAS signals, considered the first language of deaf persons (L1), that is, their maternal language[3].

Therefore, in order to turn their rights into reality, digital contents exposed and/or made available in the world computer net must be strategically elaborated, with technical alternatives to make them accessible to those persons who have reduced auditive acuity and/or communication difficulty, specially using the State´s official channels. For that purpose, strategies must be included, such as the mandatory presence of icons allusive to accessibility, and devices in video/image/sound contexts that "services of sound, pursuant legislation, which establishes that sound and image broadcast must allow for the use of subtitling, by means of hidden LEGENDA and window with LIBRAS interpreter, among others"[2].

When transmitted in clear and accessible way, the information in health may influence the consumer when making decisions about his/her own care in health. Thus, the citizen can decide, with greater autonomy, if he/she will or will not look for health services; if he/she does or does not accept the orientations on self-care and health prevention; and if he/she will or will not adhere to the treatment proposed. So, it

becomes possible to observe the implicit ability in the process of "informing on health" for individuals in a society, once, as considers Santana, actions concerning the education on health "represent an important device in creating spaces to discuss and think over actions that deal with changing behavioral habitudes", thus leading to the production of knowledgement and autonomy, both individual and collective, when searching for one self's and other people's care[4].

Communication routes used nowadays have been favoring information sharing – and, a paradox – also disinformation all over the planet. Besides radio and TV, the access to the world computer network is in constant expansion, reaching thousands and thousands of persons at one time.

In Brazil, those who use the Portuguese language as L1, both spoken and written, have access to information in health when using searching, streaming, apps and social net platforms, TV and radio. However, Brazilians who have LIBRAS as L1 face a barrier when trying to access information.

Since December 2019, we are facing the challenges of the disease caused by the SARS-CoV-2 virus, known as COVID-19, or Coronavirus, that has been leading lots of people to get ill all over the world, causing expressive number of deaths. The discovery and the proliferation of the virus in pandemic level, the lack of precise information on the origin of the disease, and the constant need of researches on the treatment and the production of safe vaccines, which must be certified by the World Health Organization (WHO)[5] have been producing AVALANCHES of information, mixing into one single bow the true and the fake, leading to unsafety for all, an enormous challenge to split among them.

On the other hand, it is known that this disease caused – and is still causing – the largest and longest physical isolation ever heard of in the history of pandemics. And it was precisely thanks to the globalization and the digital technologies that most people succeeded overcoming this difficult period of massive social isolation. We stayed home, we worked virtually, and we connected with family and the world by the internet and electronic devices. And as different presencial activities were interrupted – for instance, education, work, health and leisure –, "on-line platforms became a viable alternative to AMENIZAR the effects caused by the pandemics[6].

Therefore, it is crucially important to make sure information on health will reach all citizens, with reliable facts on the disease, how it is transmitted, how to prevent it and how to treat it, with access granted to all and every citizen – the least official governmental sites should provide. Thus, aiming at reducing the effects of the disease caused by the coronavirus in the country, the Brazilian Unified Health System (*Sistema Único de Saúde* – SUS) has been trying to spread information by means of campaigns of education on health on hands hygiene, prevention, the use of masks, the social apartheid, among other cares, according to the Ministry of Health[7]. But do those information reach all Brazilians?

Considering that Brazil is the home of some ten million people with auditive deficiency[8]); that

the COVID-19 pandemic did and still does impose restrictions on the Net of Health Attention (*Rede de Atenção à Saúde – RAS*) for some kinds of assistance; that the social apartheid did produce a new demand, leading people to search for health care in digital media; and that communication constitutes one of the main strategies for facing the crisis, this article is aimed at identifying accessibility possibilities for deaf persons to information on health about issues that involve the theme of the COVID-19 pandemic, thus justifying the present study.

METHOD

This is a descriptive and exploratory study carried out in official sites of Brazilian Federal Government, including all 26 states and the Federal District, over the period from March 2020 to March 2021. Based on videos published by official institutions, the research intended to identify accessibility conditions for persons with auditive deficiency or deafness to information on health concerning the illness caused by the coronavirus.

The Federative Republic of Brazil is a federation – an administrative-political organization that includes 27 federative units distributed in five regions: North (seven states), North-East (nine states), Center-West (three states and the Federal District), South-East (four states) and South (three states)[9]. Data collection was based on the world wide web, and the starting point were the official sites of the Federal Government, through the Ministry of Health; the State Governments, through their Secretariats of Health; and likewise, the Federal District. It is worth remarking that all contents and all information collected are under public domain.

At the first stage, a survey on the COVID-19 theme was carried out on the communication media of both the Brazilian Government and the states, there included the Federal District. At the second moment, in order to analyze the accessibility, we did select just official sites of those federate entities and the audiovisual communication media with relevant content on the theme. As inclusion criterium for the survey, we evaluated the materials published on the platforms that discussed the themes CORONAVIRUS, COVID-19, COVID VACCINES, COVID PREVENTION, COVID TREATMENT.

In the sites available, we researched the accessibility theme using the Suite VLibras, "(…) a set of free and open coded tools that translates digital contents (text, audio and video) from the Portuguese language into Libras." This assistive technology enables for the comprehension of terms and expressions in the Portuguese language in the Signals Language, which, in the case of deaf persons, is the L1 (mother language)[10].

The audiovisual materials were used to analyze the presence or absence of the window of Libras Translator Interpreter (LTI) or the presence of LTI close to the communicator-speaker, as well as the presence or absence of text captions in the Portuguese language. As to text captions, we considered those edited in videos that did correspond *ipsis litteris* to the speaker's text. Automatic text captions offered by shared video platforms were not considered, as those captions may present disparities

between the content of the messages in written and the text actually announced. Duplicated videos were also excluded.

For extracting data, a script with inclusion and exclusion criteria was used to guide the searching activity. That script was used by two researchers separately, and findings were later compared. Data records were inserted into Excell sheets, package Office 365. Those data were organized and processed, at first by state, and then were grouped by region of the country. Four categories were created in order to bring together those videos that suggested presence or absence of accessibility in communication for deaf persons: "with Libras", "with text captions", "with Libras and text captions" and "no accessibility".

As this was a research on sources under public domain, the proposal was nor required to be submitted to evaluation and approval by the Ethic Committee on Research.

RESULTS

The tools used by the federate units and the Ministry of Health for making public information on COVID-19 were: sites (general and specific), blogs, consultation applicatives, communication applicatives (whatsapp) and social neworkts (Facebook, Instagram and Twitter), besides a platform of video sharing (Figure 1).

Digital tools	Description
Sites	1. Sites of State Government, Federal District, Ministry of Health: divulge different contents, mention materials related to COVID-19 and indicate links to specific sites or other communication media to find complementary information on the pandemic. 2. Sites specific on COVID-19: divulge materials on prevention, self-care, vaccines, epidemiology and actions carried out to face the pandemic. 3. Blogs: news and reviews on COVID-19.
Social Networks	Facebook, Instagram and Twitter: contents are not exclusively on COVID-19. Include information on respective states, the Federal District and the Ministry of Health.
Mobile Applicatives	Communication (whatsapp): an alternative to "Call 0800" offered in some communication channels with federate entities. Telemedicine: evaluation applicatives on health condition that guide on cares to be taken, according to the situation.
Platform of video sharing	YouTube: all state federate entities and the Ministry of Health offer divulging channels in this platform. Space used to divulge audiovisual materials with information on activities carried out at each level, not exclusive for subjects related to the Coronavirus pandemic.

Figure 1 – Digital tools used for making public information on COVID-19 by Federate Units and the Ministry of Health. Londrina, PR, Brazil, 2020-2021

Source: Elaborated by the authors, 2021.

Once not all federate entities analyzed did adhere to the social networks, we decided not to evaluate the accessibility provided by these tools, considering the posterior comparison between the regions. As to the government official sites and the video platforms, it was possible to evaluate the presence of accessibility in both LIBRAS and text captions, as the adhesion to these divulgation tools was quite uniform.

It was noticed that accessibility in Libras was absent in 82,14% of electronic sites specific for subjects related to the Coronavirus under the responsibility of 26 state governments, the Federal District and also the Ministry of Health. And out of the 28 sites analyzed, only four did provide the VLibras tool.

It is worth remarking that, in some states, official sites did present the accessibility icon. However, these sites did not provide accessibility for persons with auditive deficiency or deafness, just for those with visual deficiency.

In the video platform, all states, the Federal District and the Health Ministry did offer official channels divulging actions of the different areas where actions were possible in the organizations. For the approach of this research, we did evaluate accessibility only in videos that did deal with the Coronavirus theme or the COVID-19 related to health. Therefore, by the end of the analysis, we did obtain 2,577 videos, which were distributed on the following axes: with accessibility for deaf persons, LIBRAS; Text captions; LIBRAS and Text captions in the same video; and no accessibility for deaf persons. Data are represented on Table 1:

Table 1 – Distribution of audio-visual materials with the Coronavirus theme posted on video platform, according to accessibility form persons with auditive deficiency (n=2,577). Londrina, PR, Brazil, 2020-2021

Region	Total vídeos	LIBRAS		Text Caption		LIBRAS + Text Caption		No Accessibility	
		N	%	N	%	N	%	N	%
Ministry of Health	324	03	0,93	230	70,99	34	10,49	57	17,59
North	379	141	31,47	97	21,65	50	11,16	160	35,71
Northeast	838	338	37,72	235	26,23	74	8,26	249	27,79
Center-West	243	35	15,22	82	35,65	10	4,35	103	44,78
Southeast	271	43	14,24	48	15,89	18	5,96	193	63,91
South	368	146	38,73	100	26,53	61	16,18	70	18,57
Total	2.577	706	27,40	792	30,73	247	9,58	832	32,29

Source: Elaborated by the authors, 2021.

Over the period from March 2020 to March 2021, we verified that 32.29% of the whole volume of materials divulged on the video platform offered no accessibility for persons

with auditive deficiency or with deafness; 27% included just LIBRAS; 30.73% offered just text captions, and out of the whole material divulged, less than 10% offered LIBRAS and text captions.

Concerning materials offering just LIBRAS, the South Region is outstanding, with 38.73%, followed by the Northeast, with 37.72%. Materials offering just text captions were more frequent in the Ministry of Health (70.99%) and the Center-West Region (35.65). The golden standard – LIBRAS + text captions - was found more often in the South and the North Regions, with 16.18% and 11.16% respectively. Videos with no accessibility were remarkable in the Southeast and the West regions, with 63.61% and 44.78% respectively.

DISCUSSION

In this research, the accessibility tools for deaf persons – the VLibras platform[10], the text caption and the Libras window – are considered to be assistive technologies, whose purpose is "to integrate the person with deficiency into the society"[1]. Therefore, the presence of those tools in all spaces where information are divulged becomes essentials.

Web pages offer more textual contents concerning video platforms. And despite the predominance of the written Portuguese language, supportive tools, such as Vibras, allow deaf users to understand terms that are unusual in their daily life. The written Portuguese is not the first language of deaf persons – it is the alternative for recording the gestural language in a scenario where no written communication is officially accepted for the signals language[11], and for that reason it is considered the second language for deaf persons.

The comprehension of text captions or informative texts may be hampered depending on how close the deaf person is of the written Portuguese. In a study on the comprehension of written texts in the Portuguese language carried out with deaf students in the South of Portugal[11], it was observed that "comprehending a text depends not only on recognizing the words in it, but also on comprehending the phrases (…) and mainly its integration, so as to elaborate a coherent representation of the message to be transmitted as a whole."

The sites analyzed presented mostly textual information, an alternative not very atrarctive to deaf persons and with poor tools for them to access information on health. Cinto e Prado[12] remark that "in order to be granted autonomy and life quality, the person with auditive deficiency demands resources that increase, keep or improve their functional capacities."

Even backed by law, which reinforces the State's duty to grant the access to information, Brazilian governments' sites are not yet unanimous as to offering that right.

Audiovisual materials evaluated in the YouTube, a variety of presentations were observed: live videos, parts of edited tapes, publicity materials, reports, all in the pandemic context, with relevant information for the population in general. And in that diversity, materials without any kind of accessibility varied from 17.59% to 63.91%, depending on the region. According to Caran e Biochini[13],

those barriers to access information on health may lead to frustration feelings and demotivate persons with deficiency when producing health care.

In the context of pandemic, demotivation and frustration are potentialized by the situation on information insecurity, as there has been large production of news related to the Coronavirus, many of them deliberately divulging fake or ENGANOSAS news[14], which holds the deaf person even farthest behind as to her autonomy for that inadequate access to information, depending on the good will of other people to decide on the production of health care.

Nevertheless, despite the national scene that presents numbers even more discrete as to the presence of accessibility in Libras for the access to information on COVID-19, a growing movement as been identified in some States to grant accessibility of materials divulged. We do realize that this study is limited to the presence or absence of accessibility, and that aspects such as the consumption of that material by the deaf community could not be analyzed at this moment.

Another limitation of the study has to do with the impossibility to compare results, as scientific publications on the theme directed to health information are still incipient.

CONCLUSION

This study revealed that less than 10% of the videos analyzed offered Libras and text captions as accessibility alternatives, which is established by law for divulging audiovisual materials. We did verify that Libras was only present in barely 25% of the published materials offering that accessibility. But the most worrying observation is that, despite the Accessibility Law, and considering the pandemic context, 32.29% of the videos published related to COVID-19 offered no accessibility resource at all.

We understand that audiovisual resources are critical in the communication for the deaf persons and that, in adequate conditions, they favor the access to information included in the video platform, especially in governmental sites.

Therefore, the discussion on the access to information must be enlarged so as to indistinctly reach all deaf users, and for us to think over the barriers still impair the production of care, for both the individual and the collectivity that looks for information on health. Other studies are required on such a relevant theme that is not sufficiently discussed to date.

Enlighted by the present study, it is expected that the presence of accessibility to information may be looked at as a right determined under the law, rather than some benevolence act offered by a State or a governmental department in their sites and platforms. And theta the access to good quality information be provided as well by health professionals, as they are an important element in the production of care for all users, either deaf or listener.

CONFLICT OF INTEREST

The authors have declared that there is no conflict of interest.

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