

# Promotion and Site Visits to a Web Portal with a Focus on Health and Inclusion (D+Informação) for Persons with Disabilities, Family Members and Professionals

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## Abstract

**Objective:** To describe the promotion of the D+Informação Web Portal and analyze site visit data.

**Method:** This is a descriptive study with a quantitative approach on the promotion of a Health Portal (D+Informação) via social networks, websites, magazines, and newspapers. The data was collected using the Google Analytics® (www.google.com/analytics) software for monitoring website traffic and included information on user behavior within the site.

**Results:** In the first month after launch and promotion, the portal received 4,525 visits from all Brazilian states and 27 countries, with an average duration of 2 minutes and 36 seconds per visit and a 60.09% bounce rate. The Brazilian state with the highest number of visits in the analyzed period was São Paulo, with 63.35% (n=2,760), followed by Minas Gerais with 11.82% (n=515). The cell phone was the most used device to access the D+Informação pages, accounting for 77.70% of the visits (n=3516).

**Conclusion:** This study showed that it is possible to promote a tool in the virtual environment, without paying for boosting on virtual social networks, provided that the promotion, associated with the analysis of site visit data, is well directed to the target audience and carried out by a synchronized and trained team.

**Keywords:** Website • Access to information • Consumer health information • Persons with disabilities • Digital inclusion

## Introduction

Internet access around the world has grown rapidly. According to the 2019 International Telecommunications Union facts and figures report, it is estimated that nearly 4 billion individuals use the internet worldwide [1]. By 2018, 70% of Brazilians had access to the internet. In the southeast of the country, 75% of inhabitants had internet access, while 64% had access in the northeast, and 70% had access in the other regions [2]. This consumption changed with the social isolation caused by the COVID-19 pandemic, with data showing that internet use has increased in Brazil since the beginning of quarantine [3]. The result of this rapid expansion is that the internet has become the largest source of information worldwide, both in terms of user numbers and the volume of information available online [4]. Recent studies show that people access the internet in search of health information and that they use the internet to assist in decision making during a health crisis [5,6]. Therefore, the impact of health information is directly reflected in the way the person deals with illness, so the quality of the information provided to users is a concern.

In relation to persons with disabilities, the ultimate goal of rehabilitation

is to recover and maintain the highest possible level of autonomy, in order to maximize participation. The role and efficiency of rehabilitation in the autonomy of persons with disabilities should be emphasized. The rehabilitation nurse is concerned with maintaining autonomy, encouraging personal, social, and health activities and cooperating to reduce limitations to participation in society [7,8].

Virtual interventions can promote the understanding of health-related information, favor appropriate decision making and better coping strategies, and reduce stigma and self-stigma [9-11]. Thus, tools that provide website data analysis can be used to provide continuous improvement. Although tools such as Google Analytics® are designed to provide information from a marketing perspective, numerous variables on webpage traffic are collected that can also inform the evaluation of the intervention process in health research [12,13].

Previous studies have used the available indicators to show the general involvement of the user with their platforms [12,14]. Examples include evaluation of the use of a sexual health website, of an online genetic education resource developed for nurses [12], and of a web-based tool to encourage the appropriate use of antibiotics [14], in addition to websites related to osteoporosis and fractures [15].

In this context, the research group that authored this study developed an informative health portal, D+Informação, with the aim of bringing high-quality information to persons with disabilities, their family members, caregivers, and researchers. The information was previously validated by experienced professionals in the area of rehabilitation and IT, and internationally certified, demonstrating its reliability. The Portal therefore provides high-quality, clearly presented information to the target audience that is relevant to their daily lives, creating an attractive, engaging, and enlightening user experience.

Despite the growing demand for accessibility in the virtual environment, especially for persons with disabilities (PwD), there are few virtual spaces providing health information with scientific credibility specifically for this target

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group. As such, this study was proposed with the aim of providing effective promotion and adaptation of the D+Informação Portal to its target audience, through analysis of user behavior during navigation, in order to improve the tool and implement strategies to increase the access of this group. Additionally, the results obtained in this research may support the development and promotion of future health education tools in the virtual environment. Therefore, this article aims to describe the promotion of the D+Informação Portal and analyze the data on site visits.

## Methodology

This is a quantitative, analytical, and longitudinal study with the aim of describing the promotion of the D+Informação Portal and analyzing site visits over a period of 30 days after its launch. The study from which this article was extracted received prior approval from the Research Ethics Committee of the host university, under protocol number 74984617.8.0000.5393.

The Google Analytics® software for monitoring website traffic was used for data collection, with the collection of data such as number of visits, duration of the session, and bounce rate, as well as type of device used, age, sex, and origin of the user [15].

The portal was launched on October 22 and 23, 2019, and virtual promotion was organized in advance in a tele-nursing laboratory equipped with 20 computers. The research group members continued to promote the Portal for a further 30 days. The promotion team boosted the launch with publications on virtual media (Facebook®, WhatsApp®, Instagram®, magazines, radio, and electronic newspapers), consisting of a brief text presenting the Portal and the access link (<https://demaisinformacao.com.br/>). In addition, posters announcing the launch were pinned up around the university and in its clinical hospital, with the QR code link to the D+Informação Portal homepage, as shown in Figure 1.

The researchers and students involved in online promotion were instructed to search for Facebook® groups for persons with disabilities (Cerebral Palsy, Autism Spectrum Disorder, Myelomeningocele, and Spinal Cord Injury), newspapers, magazines, and blogs about disability and health, in addition to digital influencers specific to this audience. Alongside the promotion process, content was updated during a one-month period, which included publication of new scientific texts, posts from professionals, videos, educational materials, and other informative materials. The content posted on the portal was reviewed daily by qualified moderators trained by the research group, with the aim of guaranteeing the quality of information to be used for promotion.

The analysis period considered in this study was 30 days. During this period, a range of content was promoted (information, reports of experiences, educational materials, news, etc.), and tests were carried out to evaluate how many online users the server supported at the same time. Statistical analysis was performed with frequency calculations for number of visits, sex, type of device, and origin. For age, the central tendency (mean) and variability (minimum, maximum, standard deviation) were calculated, while for analysis of session duration and bounce rate, only the mean value was calculated, which was provided by Google analytics®. The bounce rate was calculated considering every page opened by the internet user and closed without any further interaction.

## Results

On the two launch days, the D+Informação portal received 1,204 visits (average of 602 visits/day) and 969 new users in this period. There were visits originating from 13 countries, with no reports of server failure, supporting an average of 602 visits. The portal continued to be updated and promoted on social media during a period of one month, enhancing the number of visits, with 3296 users and 4525 visits recorded by the end of the first month. The average session duration was two minutes and 36 seconds, with a bounce rate of 60.09%. The data referring to the 30 days after the launch of the portal was considered for analysis of the results. Visits to the Portal came from the various media used as a means of promotion, as shown in Figure 2. Of the 3296 users,

it was possible to identify the age and gender of 44.93% (n=1481). The age of the internet users who accessed the Portal page during the promotion period varied from 18 to 65 years, as shown in Figure 3, with a mean age of 33 years (SD=13.15). Female users predominated, with 76.64% of users (n=1135), with males representing 23.36% of users (n=346). The cell phone was the most used device to access the D+Informação pages, followed by computer and tablet.

During the D+Informação assessment period there were 11,551 page views. The home page was the most visited, with 29.02% (n=3,352) of page views, followed by the institutional page with 6.49% (n=750), and the join us page with 5.66% (n=654). The southeast region was the leader for number of visits, with the state of São Paulo accounting for 63.35% (n=2,760) of the visits, followed by Minas Gerais with 11.82% (n=515). There were visits to D+Informação from all the Brazilian states, as shown in Figure 4. Of all the visits received, 96.29% (n=4,357) were from within Brazil, and 4.71% (n=168) came from 27 other countries, as shown in Table 1. The D+Informação Portal obtained a significant number of visits after 7 months of being updated with content for persons with disabilities. Over this period 9,692 users were recorded with 12,338 site visits, with Brazil being the leader with almost 92% of the visits.



Figure 1. Promotional pamphlet for D+Informação with QR code, Brazil, 2019.

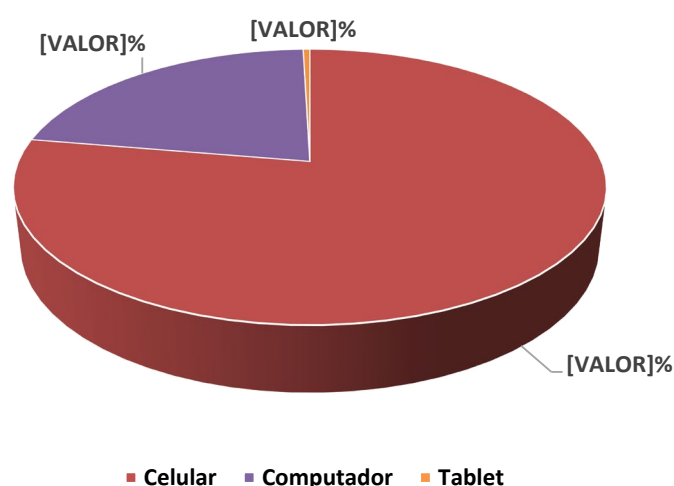
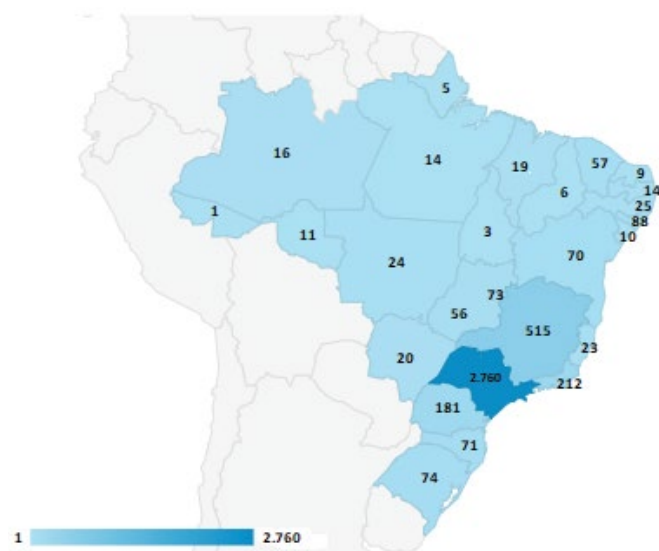
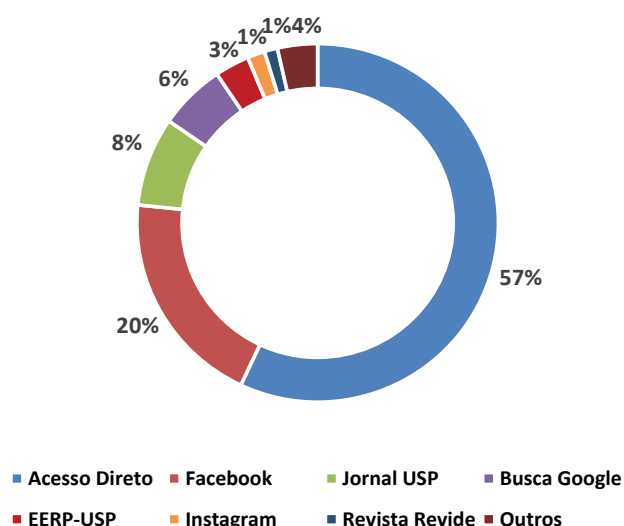


Figure 2. Distribution of devices used to access the D+Informação portal, over a period of one month, (n=4,525), Brazil, 2019.



**Figure 3.** Distribution of the largest numbers of site visits by Brazilian states of origin (n=4357), Brazil, 2019.



**Figure 4.** Distribution of the origin of visits to the D+Informação Portal, during the period of one month, (n=4,525), Brazil, 2019.

**Table 1.** Distribution of visits to D+Informação by country of origin, in the period of 1 month (n=4525), Brazil, 2019.

Country	Visits	%
Brazil	4,357	96.29
United States	55	1.22
Portugal	26	0.57
Colombia	19	0.42
Germany	10	0.22
Argentina	9	0.2
India	7	0.15
Switzerland	7	0.15
Bolivia	2	0.04
Spain	3	0.07
UK	3	0.07
Paraguay	3	0.07
Others	24	0.53
Total	4525	100

## Discussion

The promotion of the Portal proved powerful, since it resulted in more than 1,200 visits from 960 different users in two days, with this number increasing to 4,525 visits over a period of one month. Previous studies have shown that effective promotion of health-related media directly influences the increase in the number of visits and new users [16-18]. As such, the Portal achieved a significant number of visits after promotion, highlighting the importance of effective promotion to reach the target audience. The portal had a bounce rate of 60.09%. Website traffic was also analyzed in a French study with caregivers of the elderly and showed a bounce rate of about 62% [16]. A Canadian study analyzed a health research website and found a 57.87% bounce rate [17]. Compared with these previous studies, D+Informação's bounce rate of 60.09% was satisfactory, showing that more than one page was visited in a session by the user.

The mean duration of the session was 2 minutes and 36 seconds. This value is close to that identified in internet intervention studies that calculated the length of time spent on a website. A Colombian study evaluated a website that provides clinical guidelines and obtained an average session duration of 3 minutes and 45 seconds [19]. Another American study identified an average session duration of 2 minutes and 32 seconds for a media source for patients with hypertension [20]. Therefore, it is essential that the D+Informação Portal evolves with a complement of new elements that provide greater dynamism and interactivity within the pages, making it attractive to the target audience and consequently increasing session duration.

Promotion in groups and on pages for persons with disabilities and that provide health information contributes significantly to increasing visits to a portal [18]. Analysis of promotion strategies, in addition to monitoring users within the site, enables study of the effects of visitor behavior and interests within the pages, directing future publications and thus increasing user navigation.

Most of the visits that come from direct traffic usually originate from the user directly typing the link into the browser, although there are other cases where the origin of a user is considered direct by Google Analytics®, such as in the case of WhatsApp®. Considering the en masse promotion of the portal using this messaging device, most of the 57% of direct access visits came via WhatsApp®. This was followed by 20% from the social network Facebook®, which is the social media with the highest number of followers in Brazil, and is thus a significant promotional tool [21,22].

According to the data obtained, most visits to the Portal were by adult women, in the age group of 25 to 44 years old. The mean age of the women who visited the site was 33 years. It should be noted that it was not possible to identify the age and sex of all users, since this information is not always available for all site traffic. This result is in line with previous studies that demonstrate that adult women seek health services more often and are more concerned with their treatment, it also being expected that they seek more information on the internet [23,24]. While it is understood that women take the lead in the search for information on health, this data reveals the need to also attract male audiences to health education, with specific promotion strategies for this group.

Most users accessed the portal via cell phones (77.7%), followed by computers (21.86%). Currently, 94.6% of the Brazilian population accessing social media do so through cell phones, with 116 million daily users in total. In the present study the North had the highest percentage of visits via cell phones (75.4%) [25]. The growing use of cell phones for health promotion and education is recognized and has already been reflected in the development of several applications in recent years [26,27]. As demonstrated by this study, the use of cell phones facilitates access to the internet and information, which alerts the scientific community to the importance of maintaining the layout of virtual tools for cell phones. As such, the D+Informação developer group plans to develop an application of the portal for cell phones, with the aim of facilitating interaction with the user and increasing the number of visits to the Portal.



The most visited pages during the launch of D+Informação were the "home page", the "institutional" page, and "Join us". It is common for the home page to be the most visited, as it is the most publicized and represents the user's first impression, determining their subsequent behavior<sup>28</sup>. Therefore, the home page should receive the most investment in order to provide an attractive, intuitive, and interactive layout. The visits to the "institutional" and "Join us" pages show that the user sought information about the origin and authorship of the portal. This reinforces the fact that users care about the credibility of the website developers, showing a tendency to seek out quality information from reliable sources in the virtual environment.

The intense promotion strategy adopted during the first month of the launch of the D+Informação Portal attracted users from all the Brazilian states and other countries.

The majority came from the southeast region, with the state of São Paulo as the leader with more than half of these visits, while the North obtained the lowest number of visits. Social media promotion tools consider the location of the promoters and in this case the launch was held in Ribeirão Preto, near the border with Minas Gerais, making the information closer to this public. In addition to the fact that the group is headquartered in a São Paulo institution, data from the census of the Instituto Brasileiro de Geografia e Estatística (Brazilian Institute of Geography and Statistics - IBGE) show a smaller number of people with access to computers, cell phones, and the internet in the North and Northeast, albeit with exponential growth in recent years [25]. Therefore, there is a demand for promotion in the states with the lowest number of visits, including through paid boosts, in order to disseminate information to all Brazilian regions, especially those lacking information and access to health services.

As expected, the highest number of visits by far came from within Brazil. This result is consistent with the launch location and the fact that the D+informação portal is intended for the Brazilian public. On the other hand, users from 27 other countries also visited the portal. The presence of a language translation plugin (English, German, and Spanish) made it possible to automatically translate the page, which may have contributed to the navigation of international users. Interaction with other countries is an opportunity to disseminate and even compare knowledge [19,28], which is why the Neurorehab research group has international partnerships, and will soon begin the development of the German and Spanish versions of the D+Informação portal, including content relevant to the PwD public in several countries.

In the first seven months after promotion, D+Informação obtained 9,692 users, totaling more than 12,000 visits. This shows that the portal has potential as a tool for health information and education, with an increasing number of users, and that the analysis of site visit data can be used to improve promotion strategies or discover the informational interests of the target audience [16,17]. This study shows that it is productive to invest in the development of virtual tools to provide information to society and in promotion strategies that use digital media. It also proved that it is possible to carry out virtual promotion without the use of financial resources to pay for boosts on virtual social networks, provided that the analysis of site visit data is synchronized with highly targeted promotion to the target audience. It was found that promotion carried out in the virtual environment helps information reach the social media user, potentially assisting them in their doubts and health needs. For this to occur it must involve clear information, based on scientific evidence and reliable sources, with content prepared by a trained team. It should be noted that virtual health education does not replace professional care.

## Conclusion

This study showed that it is possible to promote a tool in the virtual environment, without paying for boosting on virtual social networks. This is provided that promotion, associated with site visit data analysis, is well directed to the target audience and carried out by a synchronized and trained team, in this case made up of researchers, professors and university students.

Online promotion resulted in a significant number of visits over a period

of one month and was quantitatively effective, capturing new users for the Portal. The use of the world's most popular social networks was essential for promotion, as it was the main source for generating visits to the D+Informação page. The analysis of site visit data was crucial to identifying the interests of users and directing the development of attractive content. This study shows that it can be productive to invest in the development of virtual tools and promotion strategies with the aim of providing quality health information to society, especially for PwD.

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