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Public Health on Instagram: an analysis of health promotion strategies of Portugal and Brazil

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Abstract

Despite the increasing use of social media in Health Promotion (HP) and Public Health, studies indicate that health entities have difficulties guaranteeing citizens' participation in these platforms. This exploratory study analyzed the topics covered and the interactions with followers on the Instagram profiles of both the National Health Service (NHS) from Portugal and of the Ministry of Health (MH) from Brazil, in 2019. The sample showed that national HP agendas compete with political topics: of the 208 posts from the NHS, 19.2% were about the government, and of the 424 posts from the MH, 32.20% were institutional. Fifty-three health topics were mapped in the NHS profile and 63 in the MH profile. In Portugal, there wasn't interaction with followers and in Brazil, the interaction was reduced. It is necessary to refine communication strategies to increase the reach of these profiles and encourage participation.

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1. Theoretical Framework

In 2011, the World Health Organization (WHO) created an Instagram (IG) profile and started posting health content. This initiative was followed by the Pan American Health Organization (2012) and WHO Europe (2015), among other authorities. Since then, these three institutions have produced more than 5,000 posts and gather around 2.6 million followers - Feb. 2020 - disseminating visually rich public health messages that contribute to informing the general public. These messages are particularly helpful during public health crises, like natural disasters (1,2). One month after the announcement of COVID-19 pandemic, the number of followers increased to 5,1 million (Apr. 2020) – WHO had 2.6 million new followers in 45 days (Mar. 1st to Apr. 18). This illustrates how social media (SM) can extend the reach of health promotion (HP) on public health strategies (1,3–6). Despite the increased use of this strategy, studies indicate that health entities have difficulty guaranteeing a participatory perspective in the relationship with citizens in SM. The dialogue strategy, specific to the SM, is underestimated. Users' attention to public health issues is still low (7–12).

Promotion in the digital context, especially through SM, brought direct benefits as amplified access to health information, in addition to enabling the formation of support networks between individuals and communities; expanded the forms of communication between patients and health professionals; expanded teaching and learning dynamics; enhanced the engagement in educational campaigns, with the use of direct and personalized channels (13–15). The use of SM in HP should be valued for its potential to engage with audiences for enhanced communication and improved capacity to promote programs, products, and services (16). This strategy can enable the creation of a more direct connection with the stakeholders, through multimedia channels that can monitor real-time feedbacks on contents and topics covered (7,17). But it also raised questions, especially those about data security, patient privacy, content reliability, and the limited scope of information in countries with low connection (18).

Among the possibilities for interaction between public health actors and the population in SM, IG stands out. This application mediates content through images (photos, videos, and infographics) on mobile devices. It has more than 1 billion active users since 2018 (19). IG was created in 2010 and attracts a predominantly young audience - 41% of users are up to 24 years old (20). It is a relevant platform for analyzing HP actions, as it enhances the dissemination of content through images; being used by citizens for purposes of information/education and support/motivation on health issues (7,9,10,13,14). It is also used as an institutional channel for health entities, non-governmental organizations, and companies and has a set of tools¹ that allows the sharing of content with other SM; it works with an emphasis on user preferences, through the criteria of the algorithms. The predominance of its use in urban areas and the low adhesion of senior users are considered limitations of this platform within the scope of HP.

Instagram's structure is based on the customization of content by algorithms. This fact limits the possibilities for users to interact with multiple subjects and simultaneously allows them to explore topics of interest. The user has an active role in building ties in SM by sharing images (feed, stories, Instagram TV (IGTV) or direct message), when interacting with peers (likes, (un)follow/profiles, comments, mentions of profiles or hashtags) and when doing active searches in the use and exploration. Through these actions, users promote their content, establishing and maintaining social relationships (21). Bringing HP themes closer to this logic can encourage users to take up public health issues.

This article aims to understand the HP strategies of the governments of Portugal and Brazil, in a digital *medium*, through an exploratory study on IG profiles of the National Health Service (NHS) (@sns_pt) and Ministry of Health (MH) (@minsauade), in 2019. The two countries have similarities that spurred this comparison as they both state health as a universal and free right and have a high connection rate: in Portugal, 79% are connected (22) and in Brazil 70% (23) (2019). In both countries, there is increasing use of the application: there are about 72 million

¹ IG has 7 principal interaction's resources: a) Feed - main page on which users post content and view topics of interest to those who follow or suggested by algorithms; b) Stories - channels for displaying images for 24 hours. These can be saved by themes and kept on the profile page in the story highlights; c) Direct - space for exchanging messages (text and images) individually or with groups until 6 people; d) Instagram TV/IGTV - showing videos over 1 minute or live; e) Purchases - present in commercial profiles that direct to websites; d) Search and Explore - channel to search for themes or profiles with a set of dynamic suggestions determined by themes of interest to the user; e) profile home page with information about users', photos, and story highlights. The content posted by the user can be shared by friends and other people, if the profile is public.

Brazilian users (34.0% of the population) and 3.8 million Portuguese users (37.2% of the population) (2019). The respective HP policies have similar priority themes. They approach health from a preventive perspective, based on primary care. This reinforces the need for information and encourages social participation.

2. Methodology

This research is an exploratory study, based on the collection of the following data: a) literature review; b) monitoring the publications of the profiles, and c) monitoring the interactions with users (3,6,24,25). Texts on HP in SM and both national legislation of HP was used (26,27). The profiles were observed regarding the content posted, the interaction with users, and the use of the tools available on IG (feed, story, highlights, and IGTV). The sample consisted of publications posted in March, April, September, and November of 2019. The profiles were monitored in December, with data extraction using the Instabro (28) - collecting data like image, caption, date of publication, type (photo/video), views, likes, and comments. These data were inserted in a spreadsheet, to which were added the HP themes; hashtags; markings (from other people in official profile posts), and partnership (direct quote from another entity in the post). The analysis of interactions, through the comments of followers and the responses of health entities to these contents, was made directly in the posts, as they were only available on IG. The sample constituted 632 posts published in 121 days. They were analyzed quantitatively and qualitatively. The type of content and the interaction indicators were mapped. The topics covered were ranked and compared.

3. Results and Discussion

The analysis of the content posted on the NHS and MH profiles on IG shows that these agencies partially follow the agenda of topics considered a priority in the National Health Plan (NHP) of Portugal, created in 2004, and the National Health Promotion Policy (NHPP), created in Brazil, in 2006. The 2015 NHP targets a 20.0% reduction in the under-70 mortality rate and a 30.0% increase in healthy life expectancy at age 65. It seeks to reduce risk factors related to non-communicable diseases, exposure to smoking, and childhood obesity. In 2017, the NHPP identified the following axes: the permanent education of professionals; healthy eating; physical activity, smoking control, prevention of alcohol/drug abuse; prevention of traffic accidents; preventing violence and encouraging a culture of peace; promoting sustainable development. Table 1 recapitulated the main strategies adopted by analyzed profiles.

Table 1. Synthesis of Strategies of NHS and MH on IG

Strategies	NHS (208 posts)	MH (424 posts)
Content	Highlighted institutional themes (19.2% of the sample) and adopted the WHO agenda to HP; The main theme of sample: Healthy eating; 91.0% (posts) and 9.0% (videos); The captions were summarized, and did not direct to links with more information;	Highlighted institutional themes (32.3% of the sample) and adopted the WHO agenda to HP; The main theme of sample: Flu vaccine; 70.0% (posts) and 30% (videos); The captions were long and offered a link for further lecture;
Interaction	Without dialogue with followers;	Little answers to the comments of followers
Image	Post with texts, without people - little variety of profiles among the people represented (gender, race, age, social class, and rural/urban environment).	Posts with people and places – the same little variety of profiles among the people represented.

3.1 National Health Service (NHS)

The @sns_pt profile sums 50.7 thousand followers and values posts with cards (Dec. 2019). It does not use IGTV and, at the time of the research, it had an only one-story highlight. His sample brought 208 posts. There were 73,791 likes, 29,216 views, and 561 comments. There was no answer to questions, asked in the comments, in the sense of dialoguing with the NHS. There was a lack of planning in the NHS communication on this *medium*: in March and April the posts were published within seconds - this content could be better distributed throughout the day,

according to the time of the followers' most attention; the lack of profile dialogue with people left important questions unanswered; the presence of images with excessive text was recurrent, which made reading difficult; the text of the captions was summarized, and did not direct to links with more information; the hashtags do not generate a markup of the content for easy search in the network. The partnerships to promote themes were internal: only institutional actors gained visibility such as INEM, emergency service of NHS.

Fig. 1 lists the themes published in the @sns_pt profile, of which 53 were about HP.

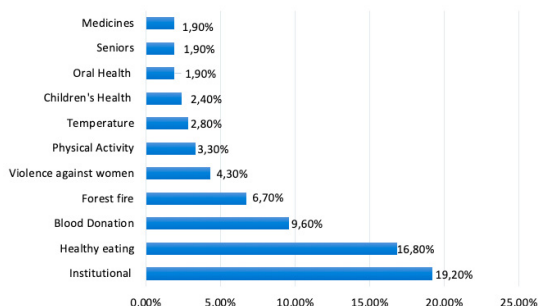


Fig. 1. (a) @sns_pt post themes

Healthy eating was the main theme prioritized by NHS profile, with posts in every month of the sample, showing consistency with the need to educate the population to combat obesity. The incidence of obese adults is higher than the average across the European Union (EU), reaching 15.4% in 2017; overweight also grows among teenagers (29). Themes that represent the biggest causes of mortality in the country have been neglected. There was a post on stroke (the main cause of mortality in the country) and one on World Heart Day (ischemic heart disease, the second cause of death). Diabetes was mentioned directly in just 3 posts. Cancer was mentioned in only one post. Smoking and excessive alcohol consumption, behaviors identified as risky, were the subjects of 1 post, each. The topic of blood donation was used very frequently every month, but generically - only 1 post was addressed to women as potential donors. The topic Forest Fire was valued in September, the period with the highest incidence of this type of occurrence. The profile joined the government campaign #PortugalChama, to raise awareness about the risk of fires. The most visible post was about violence against the elderly (1,477 likes). The WHO themes agenda was also used in single posts, adding up to 7.6% of the sample, highlighting the valorization of categories of health professionals.

Monitoring user interactions revealed that none of the comments and questions from NHS followers on IG were answered by the communication team. Critical comments to the post were highlighted (see Table 2).

Table 2. Types of user comments on @sns_pt

Topic of Post	Comments
World Diabetes Day	Critical - "Dear NHS, can diabetes be prevented? Are we going to make a statement like this as if there were no different types of diabetes? I am a type 1 diabetic and my habits or eating habits were not the cause of my illness..."
Scheduling online appointments at the NHS	Complaint - "I already tried in my health post and it came to naught. He told me that the system doesn't call, bullshit after bullshit, those who need it most are the old people and those who have less access to the systems, many of the computers, others don't know how to deal thereby".
Card of the person with rare disease	Doubt - "How do you get? The family doctor does not know, the neurologist does not know chronic pain does not know ... I think the information does not get where it should".
40 years NHS	Compliment - "It is an important date but above all in honor of those who raised the SNS AND fed it, LET'S FIGHT FOR HIM because he is dying. Let's have Hope and say NO WHEN the NHS is wiped out."

3.2 Ministry of Health (MH)

The @minsaude profile on IG had 689 thousand followers and explored all channels available: using cards (text and images), videos, photos, stories, IGTV, and the story highlights. The sample with 424 posts added 1,003,665 likes and 2,951,005 views, with an average of 3.5 posts per day. This content stimulated 24,819 comments, with 208 answers of MH. The images of the posts were easy to read and had good resolution; most of the texts were long and offered a link for further lecture; hashtags delimited the content explored. The 135 profile markings made in the posts cited members of the government, with an emphasis on the profiles of the minister and the president. Only two public figures were used to promote content (Carnival/blood donation) in the feed. The posts content was divided into institutional and HP, the latter saw 63 themes (Fig. 2).

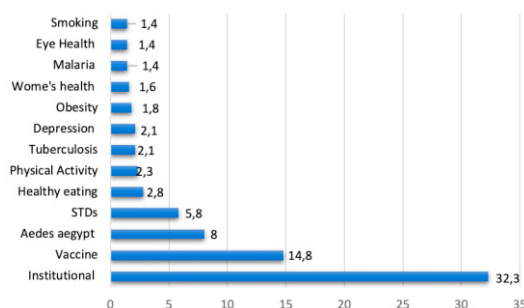


Fig. 2. (a) @minsaude post themes

The vaccine was the main HP theme in the sample. It refers to the immunization against the flu highlighted in the campaign #VacinaBrasil - created to expand the vaccine coverage of the flu (for seniors, children, pregnant, and people with chronic diseases). Campaign content has been repeated several times over the months, with few changes. The fight against Dengue and its vector (*Aedes aegypti*) was the second most cited theme. It was released throughout the year, oscillating between posts with a low number of likes to the topic with a greater reach of the sample - a post about the vaccine in development (30,780 likes). The messages were transmitted on weekends, to encourage actions to combat possible mosquito focus. The agenda on Sexually Transmitted Infections (STDs) was concentrated during the Carnival (Mar.) when it was posted 22 times (88.0% of the theme in the sample), half of which were videos. The HIV prevention campaign brought a celebrity to promote the subject. Topics directly related to the main causes of mortality in Brazil (ischemic and cerebrovascular heart disease) were mentioned in 6 posts, addressing hypertension and World Heart Day. They were indirectly cited in posts about smoking and obesity. The healthy eating theme stood out for the balance of approach and presence in the MH feed. It was cited every month and aimed at different audiences (children, women, etc.), in addition to being associated with the prevention of diseases such as cancer and obesity. The theme of cancer was used 8 times, based on the focus on prevention and dates on specific types of the disease highlighted by WHO. Considering the demographic profile of the country, the approach to topics such as breastfeeding, the health of the seniors and indigenous people is considered low - mentioned once, each. The emphasis on smoking and obesity was disproportionate to the impact of this risky behavior and epidemic on health (30). Alcohol abuse was dealt with in just 1 post. WHO health campaigns on awareness of causes were used in single posts (4.0% of the sample).

The monitoring of interactions with users revealed the greatest weakness of MH's communication work on IG. Of 24,000 comments, among which questions and criticisms predominated, only 208 responses were given. Many were automatic messages replicated without listening to the issue. Five types of predominant comments were identified in the sample: critical; compliment; doubt; a complaint about the National System of Health; friend tagging in the post (see Table 3). In several comments, there were questions and criticisms relevant to the content conveyed, that were not answered by the agency. Despite there being numerous occurrences of people tagging in the comments to read the MH post, the agency made only 4 publications inviting users for interaction. The posts asked netizens to mark a person with the content on the themes of maternity, vaccine, blood donation, and fake news.

Table 3. Types of user comments on @minsaude

Theme of Post	Comments
HIV Preventions	Critical – “I don't know if a campaign based on fear raises awareness. This type of campaign has been used for a long time and shows that it does not contribute to full awareness. It is necessary to re-evaluate the approach and be honest when presenting the information”.
Tuberculosis Treatment	Complaint – “Many public hospitals in the region of Brasília and Goiás are short of drugs against tuberculosis and overcrowding in hospitals has made it difficult to treat many patients”.
Senior Health Handbook	Doubt – “Where can I find @minsaude”
How to avoid Salmonella?	Compliment - “I loved the article and would really like you to post with sanitized dishes and sinks after contact with eggs, chicken, etc”

In the item HP, 21 themes were the same in both profiles (see Table 4), of which 28.5% were dates published by WHO. Each country devoted attention to HP themes, according to its epidemiological profile and needs. The emphasis on vaccination and STDs was accentuated in Brazil and contrasts with the low visibility of topics such as the elderly and Diabetes, highlighted in Portugal. The theme of healthy eating was highlighted in both profiles: it was the most discussed topic in Portugal and the fourth in Brazil.

Table 4. Coincident themes of health promotion (HP)

Theme	Brazil	Portugal
Vaccine	21,95%	1,79%
STDs	8,71%	1,19%
Healthy eating	4,18%	11,90%
Physical Activity	3,48%	3,57%
Depression	3,14%	0,60%
Cancer	2,79%	0,60%
Women's Health	2,44%	0,60%
Smoking	2,09%	1,19%
Seniors	1,39%	2,98%
Children's Health	1,39%	2,98%
Patient Safety	1,39%	0,60%
Traffic	1,05%	1,79%
Autism (WHO)	1,05%	0,60%
Blood Donation	0,70%	11,90%
Diabetes	0,70%	1,79%
Trisomy 21 (WHO)	0,70%	0,60%
Oral Health	0,35%	2,38%
Nat. Day of Deaf (WHO)	0,35%	0,60%
World Sepsis day (WHO)	0,35%	0,60%
World Heart day (WHO)	0,35%	0,60%
Haemophilia (WHO)	0,35%	0,60%

The profiles approached the health theme from a prevention perspective. However, in some posts, there was an imposing language. Listening to citizens and their participation in the respective channels was neglected in both profiles, most significantly in @sns_pt. The lack of interaction with followers and the limited use of Instagram's communication tools made this profile a repository of institutional content. Analysis of the profile of MH on Facebook seems similar to this strategy. Studies (31,32) pointed out the lack of interaction with citizens through comments; vertical communication and centered on the sender; highlighted institutional content. None research was found on the use of IG by public health actors to assess the pattern registered between Portugal and Brazil occur in other contexts. However, studies related to the use of Twitter by health organizations in the United States (33) and Australia (34) found that profiles (state level in the USA and national level in Australia) disseminate health information more than institutional content. Further studies will be needed to update this usage within the scope of IG.

4. Conclusion and future work

The HP strategies of the NHS and MH are similar: they both did not balance attention to priority issues in their HP policies. The main differences between the actions of the two entities were: the quality of the content posted (with attractive images, informative texts, and hashtags appropriate to the text); planning posts and using the tools available in the application – in MH profile. From the sample of the content conveyed, it can be concluded that there is a need to start a dialogue with the users and to carry out HP actions on IG. There is a need to refine communication strategies to broaden the reach of profiles and encourage social participation. Suggestions of good practices are based on the scenario identified in this research: reduction of institutional content and increase of questions related to the central themes of HP in both countries; monitoring of profiles to generate data indicating strategies about their reach; use the information given in the comments to improve ongoing communication strategies; answer to comments when there are questions; the contents covered should be topics of interest to the citizens' routines; including digital influencers in health actions targeting different segments of the public (35,36). NHS should improve the planning of posts content and publication times. This includes producing more attractive texts and editing images to IG specifications (using less text in the images); explore IG tools more, to offer more dynamics to the content served.

The main limitations of the research are related to the fact that the interaction with followers was only observed through responses to comments. It was not possible to map dialogues between citizens and official profiles through direct messages; it was also not possible to map the shares of NHS and MH posts by followers. Another issue concerns the dynamic nature of the data, as the information on the two profiles is constantly changing: they are active SM. The analysis corresponds to an assessment over a specific period, but it offers insights into the strategies adopted in the profiles. Future studies should include a more detailed analysis of the content of the images: in this sample, this theme was not explored further.

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