

Communication Beyond COVID-19 of Portuguese Health Entities Through Social Media

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Abstract: Health communication is critical for achieving positive clinical health outcomes. This work aims to analyse how Portuguese health entities communicated non-COVID-19 health content with the public on social media, during the COVID-19 pandemic. A retrospective study was conducted on the Portuguese National Healthcare Service's communication with the public using social media platforms. Data from the National Health Service (NHS) and Directorate-General of Health (DGS) posts of the year 2020 were collected from Facebook, Instagram, and Twitter. A thematic analysis of all non-COVID-19-related posts was conducted, and the engagement (E) of the public was calculated. The most frequently published subject on social media platforms by NHS and DGS were "Commemorative Dates" (34.87%), "Miscellaneous" (19.95%), and "Emergency Preparedness and Response" (19.85%). On the NHS social media platforms, the posts with the highest public engagement were "Innovation" (E=926.0) on Instagram; "Vaccines, and Immunization" (E=577.9) on Facebook; and "Commemorative Dates" (E=23.0) on Twitter. DGS posts with the highest engagement of the public on all social media platforms were "Emergency Preparedness and Response" (E=2294.1) on Facebook; "Commemorative Dates" (E=122.5) on Instagram; and "Infant and Child Health" (E=107.7) on Twitter. The findings indicate that during the COVID-19 pandemic, the Portuguese National Healthcare communicated beyond COVID-19 disease.

Keywords: Communication; Engagement; Health Entities; Social Media; Social Networks

1. Introduction

Health communication is an important strategy for the improvement of health literacy and is essential to the promotion of population health and to achieving good clinical health outcomes. According to the Centers for Disease Control and Prevention (CDC) Social Media Tools, Guidelines & Best Practices, *"the use of social media tools is a powerful channel to reach target audiences with strategic, effective, and user-centric health interventions"* (Centers for Disease Control and Prevention, 2021).

At the beginning of 2020, the coronavirus disease (COVID-19) pandemic conducted a massive flow of health information with 24/7 news coverage (Finset et al., 2020). This massive flow of health information and perspectives on the pandemic was unprecedented and diverse and, with the pandemic development, has become obvious the need to provide clear, honest, and valid information to the public all over the world (Finset et al., 2020).

Portugal was not an exception, and during the first year of COVID-19 health entities increased their presence on social media platforms, but the COVID-19 content of the publications was not in line with the interest of the public (Azevedo et al., 2022).

Portuguese National Healthcare Service is public and free and was considered one of the bests healthcare services in the world (World Population Review, 2022). Even so, the lack of communication was identified as a gap that can compromise the management of non-communicable diseases (Plácido et al., 2020, Plácido et al., 2021). Furthermore, restrictions related to the COVID-19 pandemic, compromise the traditional channels of communication, and hamper the communication of the National Healthcare Service with the public. Considering that ensuring control of non-communicable diseases and risk factors is essential to maintaining the well-being of the population and that some non-communicable diseases increase the risk of developing severe or even fatal COVID-19 (World Health Organization, 2020a), this work aims to retrospectively analyse the communication beyond COVID-19 of Portuguese public health entities with the public using social media platforms.

2. Materials and Methods

2.1 Study Design and Data Source

The main authority on health in Portugal is the National Healthcare Service (NHS), which has the Directorate-General of Health (DGS) under its authority and direct administration (National Health Service, 2021). The official accounts on Facebook, Instagram, and Twitter of the NHS¹²³ and DGS⁴⁵⁶ were accessed between 1st January 2020 and 31st December 2020. Data regarding the existence, use, and engagement of users were collected. The official websites of the health entities were provided by the NHS website (National Health Service, 2021).

2.2 Data Collection

All NHS and DGS posts published between 1st January 2020 and 31st December 2020 on each social media platform (Facebook, Instagram, and Twitter) were retrieved and analysed following the methodology described by Azevedo et al. (2022). Data collection from posts was stratified by the entity and by social network platform and these were soon divided into COVID-19-related or non-COVID-19-related posts. Non-COVID-19-related posts group was also classified according to the type of post it and additionally, the number of reactions that each publication triggered was also collected (Figure 1).

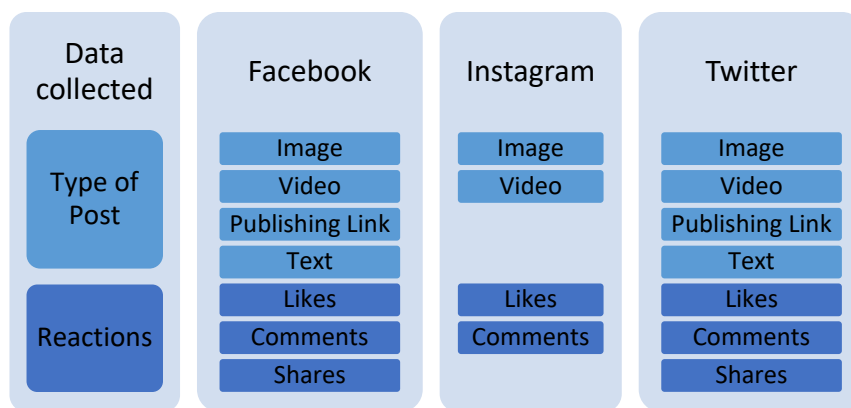


Figure 1: Data collected from the posts of the health entities' official social media accounts on the platforms under analysis.

The analysis of the user interaction enabled the assessment of the engagement (E) of the public with the social media platforms of NHS and DGS was calculated following the methodology reported by Azevedo et al. (2022).

2.3 Thematic Analysis

The communication of health entities on social media platforms was explored using a thematic analysis in accordance with Braun and Clarke (2006). Briefly, after a repeated and detailed reading of the content of all non-COVID-19-related posts by two independent researchers (D.A. and A.I.P) and with the support of the literature (Bhattacharya et al., 2017, Al et al., 2019, Loss and von Uslar, 2021, Jha et al., 2016), an initial "coding concept" was created. Then, the initial codes were accurately analyzed by the research team and revised following the strategy used by Jha et al. (2016) and the final categorization emerged (Table 1).

3. Results

3.1 Health Entities and Social Media Accounts

It was observed that NHS and DGS expressed a preference for Twitter (Table 1). During the study period, less than 38% of the total posts published by NHS and DGS were non-COVID-19-related themes.

¹ NHS Facebook - <https://www.facebook.com/sns.gov.pt>

² NHS Instagram - https://www.instagram.com/sns_pt/

³ NHS Twitter - https://twitter.com/SNS_Portugal

⁴ DGS Facebook - <https://www.facebook.com/direcaogeralsaude/>

⁵ DGS Instagram - https://www.instagram.com/direcao_geral_saude/

⁶ DGS Twitter - <https://twitter.com/DGsaude>

Table 1: Total posts published in 2020 by health entities on their official accounts on social media platforms.

		Posts published in 2020				Total of posts (number)
		COVID-19-related posts		Non-COVID-19-related posts		
		number	percentage	number	percentage	
NHS	Facebook	658	67.77%	313	32.23%	971
	Instagram	783	62.99%	460	37.01%	1243
	Twitter	1471	64.29%	817	35.71%	2288
	Total	2912	64.68%	1590	35.32%	4502
DGS	Facebook	459	84.84%	82	15.16%	541
	Instagram	480	74.19%	167	25.81%	647
	Twitter	565	83.58%	111	16.42%	676
	Total	1504	80.69%	360	19.31%	1864

DGS - Directorate-General of Health; NHS - National Health Service

3.2 Thematic Analysis

Table 2 describes the health communication categories that emerged from the thematic analysis of all non-COVID-19-related posts. The categories “Commemorative Dates”, “Miscellaneous”, and “Emergency Preparedness and Response” were the most reported on the global of the three social media platforms of both health entities, with a post percentage of 34.87%, 19.95%, and 19.85%, respectively. In opposition, the category “Chronic Disease” was the one that presented the lowest post percentage with only 0.05% of the posts (data not shown).

3.2.1 National Health Service

In health communication through social media platforms, NHS adopted virtually the same post preferences on Facebook, Instagram, and Twitter, with the three most commonly used common categories being “Miscellaneous” (F=30.35%, I=11.96%, and T=26.44%), “Commemorative Dates” (F=26.20%, I=43.70%, and T=26.68%) and “Emergency Preparedness and Response” (F=15.65%, I=28.04%, and T=16.65%) (Table 3). Among the emerging categories, “Infant and Child Health” and “Smoking and Tobacco use” were the ones that, simultaneously on the three platforms, presented a residual percentage of posts, not reaching even 1% of posts each (Table 3).

Regarding public engagement achieved by NHS posts, on Facebook, the categories that generated greater public engagement were “Vaccines and Immunization” (E=577.9) and “Healthy Living” (E=528.5), on the other hand, lower public engagement was associated with posts from “Women's Health” (E=51.0) and “Injury and Violence” (E=70.0) categories (Table 3). On Instagram, “Innovation” and “Smoking and Tobacco use” were the categories responsible for the highest public engagement (E=926.0 and E=912.3, respectively), while “Communicable Diseases” was the category that triggered the lowest public engagement (E=147.0) (Table 3). On Twitter, greater public engagement resulted from posts in the “Commemorative Dates” and “Healthy Living” categories (E=23.0 and E=22.1, respectively), and lower public engagement occurred in the “Women's Health” category (E=0.7) (Table 3).

On Facebook, in the set of all categories, the types of posts favored by the SNS were publishing links and images in 56.23% and 42.81% of posts, respectively, to the detriment of video, which was only used in 0.96% of posts, and the text, which was not part of the SNS choices in any of its publications. Although the SNS, on Facebook, made the most posts in the set of all categories through publishing links, it was the video and image posts that generated the most public engagement (E=354.0 and E=346.7, respectively) (data not shown).

On Instagram, in the set of all categories, the type of post privileged by the SNS was the image in 90.69% of the posts, to the detriment of the video, which was only used in 9.31% of the posts. In addition to the SNS having made most of its posts in images, this type of publication also always triggered greater public engagement (data not shown).

On Twitter, in the set of all categories, the post type preference order adopted by the SNS in its posts was the image (78.58%), publishing link (17.63%), text (2.69%), and video (1.10%). Although SNS video posts on Twitter are a minority (1.10%), they were the ones that generated the most public engagement (E=99.1) (data not shown).

3.2.1 Directorate-General of Health

In health communication through social media platforms, DGS adopted practically the same post preferences on Facebook, Instagram, and Twitter with the two most used common categories being “Commemorative Dates” (F=71.95%, I=47.90%, and T=36.04%) and “Emergency Preparedness and Response” (F=10.98%, I=28.14%, and T=15.32%) (Table 3).

Table 2: Emerged health communication categories from health entities' posts on Facebook, Instagram, and Twitter social media platforms.

Health communication categories	Main subcategories encompassed	Coding concepts	Quotes
Cancer Prevention	<ul style="list-style-type: none"> Breast cancer Familial cancer Cancer patients 	Screening, investigation of new genetic alterations, and new services for cancer patients.	<p><i>"Researchers from the Portuguese Institute of Oncology in Lisbon have identified new genetic alterations in some types of familial cancer, which may be responsible for hereditary cancers in families prone to some of the most aggressive forms of the disease."</i></p> <p><i>"The Northern Regional Health Administration will resume the breast cancer screening program."</i></p>
Chronic Diseases	<ul style="list-style-type: none"> Cardiovascular diseases 	Cardiovascular risk factors.	<i>"Cardiovascular risk factors: Study reveals that more than half of Portuguese are obese or pre-obese."</i>
Communicable Diseases	<ul style="list-style-type: none"> HIV/AIDS infections Viral hepatitis Sexually Transmitted Diseases 	Awareness campaigns, intervention protocols, alerts on transmission and protective measures.	<p><i>"Condoms protect against HIV and other sexually transmitted infections."</i></p> <p><i>"The Doctor Ricardo Jorge National Institute of Health and Loures sign a protocol for intervention in the field of HIV/AIDS."</i></p>
Drugs and Alcohol	<ul style="list-style-type: none"> Excessive alcohol consumption Addictive behaviors 	Awareness campaigns, warning of consequences, and Service for Intervention in Addictive Behaviors and Dependencies (SICAD).	<p><i>"Want to risk one more drink? The result can be seen... If you drink, don't drive."</i></p> <p><i>"Substanceless addictions are increasingly the order of the day. Learn more about gambling, internet and other addictive behaviors at @SICAD_Portugal."</i></p>
Emergency Preparedness and Response	<ul style="list-style-type: none"> Community resilience General emergency preparedness Summer and winter preparedness 	Recommendations and educational messages. Recognition of signs and symptoms and ways to act in emergency situations. Seasonal Health Contingency Plans.	<p><i>"Exposure to intense heat can have negative health effects. Take cover!"</i></p> <p><i>"Carbon monoxide is a toxic gas that has no smell or color. If you suspect inhalation, call 112."</i></p> <p><i>"Be aware of the symptoms. Stroke and heart attack are a reality, call 112 immediately."</i></p> <p><i>"Always bear in mind that most fires start with a negligent act. Find out the fire risk for your county at: http://goo.gl/gUhlO9"</i></p>
Environmental Health	<ul style="list-style-type: none"> Environment Pollution 	Campaigns to avoid pollution and care for the environment.	<p><i>"Government launches campaign to avoid garbage production."</i></p> <p><i>"All waste, and especially plastic, lead to record levels of pollution caused by microplastics, which threaten marine species and human health. Always put your rubbish in the proper containers or keep it in a bag until you leave the beach."</i></p>
Healthy Living	<ul style="list-style-type: none"> Healthy community Living and medical advice Nutrition and diet Physical exercise National Programs for the Promotion of Healthy Eating and Occupational Health 	Awareness campaigns and encouraging messages for the demand for primary health care and to go to the emergency room. Educational messages about hydration and healthy eating. Calls for blood donation, antibiotic resistance fighting, salt reduction and physical exercise practice.	<p><i>"Awareness campaign: "Help us to take better care of you, trust in Primary Health Care and contribute to reducing waiting times in hospital emergencies". This is the motto of the campaign developed by Barreiro Montijo Hospital Center."</i></p> <p><i>"Your health comes first. If you need it, don't hesitate to seek health care. We are all responsible and must take care of ourselves, our family and friends, contributing to the community. Take care of yourself, take care of everyone!"</i></p> <p><i>"Blood donation is probably the biggest solidarity platform, give who can, receive who needs it. Join this noble cause, donate blood. Drop by drop we save lives."</i></p> <p><i>"Do not take antibiotics without a prescription."</i></p> <p><i>"For your health, cut back on salt."</i></p> <p><i>"Did you know that climbing stairs burns up to 7 times more calories than taking an elevator?"</i></p>
Infant and Child Health	<ul style="list-style-type: none"> Emergencies National Programs 	National Neonatal Screening Program and Pediatric Emergency.	<p><i>"CHBV Pediatric Emergency: Pediatric Emergency resumed within 24 hours from today, July 1st."</i></p> <p><i>"National Neonatal Screening Program Take Care of Yourself, Take Care of Everyone!"</i></p>
Injury and Violence	<ul style="list-style-type: none"> Violence in the cycle and life, against health professionals and domestic 	National prevention campaigns, plans and programs. Calls for participation in cases of	<p><i>"National Suicide Prevention Campaign: We all have a say in preventing suicide. Be aware of the signs. If someone's life is in danger, call for help immediately."</i></p> <p><i>"Domestic violence is a pattern of behavior that must be reported. Call 112 or 800 202 148, or SMS 3060."</i></p>

Health communication categories	Main subcategories encompassed	Coding concepts	Quotes
	<ul style="list-style-type: none"> • Suicide 	aggression and violence and health security office.	<i>"Creation of the Health Security Office: Measure aims at a more systematic approach to the problems of violence against health professionals."</i>
Mental Health	<ul style="list-style-type: none"> • DGS National Program for Mental Health 	Partnership protocols, disclosure of newsletters, campaigns, documentaries and webinars and home support teams.	<i>"Recommendations for your Mental Health - To better manage your day, your routines and your emotions. A partnership between the Directorate-General for Health and the Order of Portuguese Psychologists. Take care of yourself, take care of everyone!"</i> <i>"Watch the documentary: "Depression", from the campaign 'Let's Talk' sponsored by DGS - National Mental Health Program Cultural Forum of Alcochete."</i> <i>"Review process of the Mental Health Law already underway."</i> <i>"Creation of the first three home support teams in Alentejo."</i>
Miscellaneous		<p>Promotion and Announcements of awards, contests, training, careers and recruitment.</p> <p>Disclosure of the 2020 State Budget, investments and reinforcements, openings and ceremonies and visits by government entities.</p> <p>Interesting information about SNS24, INEM and the rights, support and benefits of the Informal Caregiver.</p>	<i>"SPMS wins Marketeer 2020 Award with the brand SNS 24."</i> <i>"Special Career in Nursing: Ordinance published with requirements for the recruitment contest."</i> <i>"Disease prevention and health promotion are priority areas in the National Health Service."</i> <i>"Reinforcement in the area of Health: Supplementary budget foresees a reinforcement of 504 million."</i> <i>"Prime Minister and Minister of Health inaugurate hospitalization and visit works of the Rehabilitation Plan of Centro Hospitalar Gaia Espinho (CHVNGE)."</i> <i>"INEM Poison Control Information: 2,288 telephone inquiries were made in the field of toxicology in June."</i> <i>"Caregivers and people cared for can now consult their rights and benefits, support measures and services, as well as responses at various levels in ePortugal."</i>
Smoking and Tobacco use	<ul style="list-style-type: none"> • Fight against smoking 	Awareness campaigns and educational messages.	<i>"The importance of @who's SPEAK OUT #TobaccoExposed campaign aims to reinforce effective policy interventions in the fight against tobacco, expose industry tactics, inform young people about the intentions and tactics of the tobacco industry to capture them as new consumers and empower tobacco influencers young people to warn and defend them."</i> <i>"Quitting smoking is the best decision a smoker can make to improve their health and the health of those around them."</i> <i>"To have a healthy lung, have healthy lifestyle habits, such as not smoking. Protect yourself for your health."</i>
Vaccines and Immunization	<ul style="list-style-type: none"> • National Vaccination Program • Seasonal flu vaccination • Pneumococcal vaccine 	<p>New scheme of NVP, DGS annual rule on vaccination and ways to consult vaccines bulletin.</p> <p>Appeals and advice not to delay vaccination.</p>	<i>"Consult the new scheme of the National Vaccination Program."</i> <i>"Vaccination is a priority public health measure - be sure to vaccinate your children. If you are pregnant or belong to a risk group, do not delay your usual vaccinations."</i> <i>"Do not postpone vaccination in any way", warns the Director-General of Health".</i> <i>"Vaccines 4 ways to consult your vaccine bulletin."</i>
Women's Health	<ul style="list-style-type: none"> • Female Genital Mutilation 	Prevention and combat collaboration protocols, statements by the Secretary of State for Health and alerts to physical, mental and economic costs.	<i>"Lisbon and Tagus Valley Regional Health Administration signs two collaboration protocols within the scope of Preventing and Combating Female Genital Mutilation."</i> <i>"World Health Organization (WHO) warns of the physical, mental and economic costs of female genital mutilation."</i>
Logistic		Reinforcement of human resources, means of diagnosis, medical units, assistance and clinical activity, fleet of ambulances, emergency means, work teams and infrastructure.	<i>"Reinforcement of Human Resources: ARSLVT with more than 1,249 professionals in the health centers."</i> <i>"Investment for the Endoscopic Techniques Unit."</i> <i>"Resumption of care activity: Centro Hospitalar do Médio Tejo with more consultations, surgeries and consultations."</i> <i>"Investment in 107 new ambulances to reinforce the fleet."</i> <i>"Medicines Availability management: Platform for notifying drug shortages came into force."</i> <i>"Infarmed Medical devices: New information system is now available."</i>

Health communication categories	Main subcategories encompassed	Coding concepts	Quotes
		New platforms and information systems. Increased transplants and reduced waiting lists.	
Commemorative Dates		Marking commemorative days, weeks or months (worldwide, international, European, national, etc.) and anniversaries.	<p><i>“European Day of 112: INEM calls on citizens to collaborate with the authorities in an emergency.”</i></p> <p><i>“April: International Child Abuse Prevention Month! Take care of yourself, take care of everyone!”</i></p> <p><i>“SNS 24 celebrates three years today! Remember: even on special days, SNS 24 is always available!”</i></p>
Innovation	<ul style="list-style-type: none"> • Innovative techniques, treatments, drugs, procedures, equipment and approaches • Research, projects and discoveries 	<p>Innovative: transplants, therapeutics, drug processes and mechanisms.</p> <p>Home Hospitalization, mobile applications, Musculoskeletal Tissue Bank and Integrated Responsibility Center.</p> <p>Pioneering approaches and discovery of new mechanisms.</p>	<p><i>“CHULN pioneers an amniotic membrane transplant to close a hole in the retina.”</i></p> <p><i>“S. João implants a long-term neurostimulator in an epileptic patient.”</i></p> <p><i>“CHVNG/E implements anesthetic gas capture and recycling project.”</i></p> <p><i>“Infarmed, I.P. completed 27 innovative drug processes in 2020.”</i></p> <p><i>“New technique allows reduction of invasive procedures and hospitalization.”</i></p> <p><i>“First Integrated Responsibility Center for Urology in the Lisbon and Tagus Valley region.”</i></p> <p><i>“New space in São João: CHUSJ starts the activity of the Musculoskeletal Tissue Bank.”</i></p> <p><i>“New glucose uptake mechanism discovered.”</i></p> <p><i>“WHO launches mobile application to help detect hearing loss. INSA proposes a pioneering approach in the control of rare genomic diseases.”</i></p>

Among the emerging categories, “Injury and Violence” presented, simultaneously on Instagram and Twitter, a residual percentage of posts, not reaching even 1% of posts in each (Table 3).

Regarding public engagement achieved by DGS posts, on Facebook and Instagram platforms, the categories with the highest percentages of posts were also those that originated the greatest public engagement (Table 3). On Twitter, the category that generated the most public engagement was “Infant and Child Health” (E=107.7), while the lowest public engagement was associated with posts in the “Logistic” category (E=22.0) (Table 3). The categories “Mental Health”, on Instagram, and “Healthy Living”, on Facebook, were the ones that triggered the lowest public engagement (E=53.5 and E=296.5, respectively) (Table 3).

On Facebook, in the set of all categories, the type of post favored by the DGS was the image in 86.59% of the publications, to the detriment of the publishing link and video, used in 9.76% and 3.66% of posts respectively, and text, which was not part of the DGS choices in any of its posts. Although the DGS, on Facebook, made most of the posts in the set of all categories in image, it was the publishing link posts that generated the greatest public engagement (E=5368.8) (data not shown).

On Instagram, in the set of all categories, the type of post favored by the DGS was the image in 96.45% of the posts, to the detriment of the video, which was only used in 3.55% of the posts. On Instagram, in addition to the fact that DGS made most of its posts in images, this type of post also triggered greater public engagement (data not shown).

On Twitter, in the set of all categories, the order of preference of the type of post adopted by the DGS in its posts was the image (81.08%), text (12.61%), publishing link (5.41%), and video (0.90%). Despite the DGS text posts on Twitter representing only 12.61% of its posts, they were the ones that generated the greatest public engagement (E=63.6) (data not shown)

Table 3: Emerged categories percentage and interaction from the Health Entities' posts on Facebook, Instagram, and Twitter.

		NHS			DGS		
		Facebook	Instagram	Twitter	Facebook	Instagram	Twitter
Cancer Prevention	%	0.64%	-	0.61%	-	-	-
	Interaction	477.5	-	5.8	-	-	-
Chronic Diseases	%	0.32%	-	-	-	-	-
	Interaction	152.0	-	-	-	-	-
Communicable Diseases	%	-	0.43%	0.61%	1.22%	-	-
	Interaction	-	147.0	4.2	416.0	-	-
Drugs and Alcohol	%	-	0.43%	0.98%	-	-	-
	Interaction	-	776.5	9.0	-	-	-
Emergency Preparedness and Response	%	15.65%	28.04%	16.65%	10.98%	28.14%	15.32%
	Interaction	159.3	428.5	10.7	2294.1	86.3	43.9
Environmental Health	%	-	0.22%	0.24%	-	0.60%	-
	Interaction	-	758.0	12.5	-	62.0	-
Healthy Living	%	2.56%	8.91%	5.75%	2.44%	3.59%	7.21%
	Interaction	528.5	558.7	22.1	296.5	109.8	54.3
Infant and Child Health	%	0.64%	0.22%	0.37%	-	1.80%	2.70%
	Interaction	133.0	291.0	2.7	-	62.3	107.7
Injury and Violence	%	0.32%	1.09%	0.86%	-	0.60%	0.90%
	Interaction	70.0	655.2	19.0	-	99.0	65.0
Mental Health	%	1.28%	0.65%	0.86%	2.44%	1.20%	3.60%
	Interaction	85.5	872.7	5.7	324.0	53.5	23.3
Miscellaneous	%	30.35%	11.96%	26.44%	6.10%	4.19%	9.91%
	Interaction	91.4	421.2	5.4	1316.6	115.0	56.5
Smoking and Tobacco use	%	0.32%	0.65%	0.73%	-	0.60%	-
	Interaction	106.0	912.3	7.0	-	55.0	-
Vaccines and Immunization	%	3.19%	2.39%	2.20%	4.88%	11.38%	23.42%
	Interaction	577.9	615.1	12.8	1056.5	111.2	37.5
Women's Health	%	0.32%	-	0.37%	-	-	-
	Interaction	51.0	-	0.7	-	-	-
Logistic	%	12.46%	1.09%	13.10%	-	-	0.90%
	Interaction	91.1	461.0	4.1	-	-	22.0
Commemorative Dates	%	26.20%	43.70%	26.68%	71.95%	47.90%	36.04%
	Interaction	390.1	498.8	23.0	1884.3	122.5	34.0
Innovation	%	5.75%	0.22%	3.55%	-	-	-
	Interaction	173.1	926.0	4.8	-	-	-
Total of categories	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Interaction	214.4	614.2	12.0	1759.6	107.4	41.8

DGS - Directorate-General of Health; NHS - National Health Service

4. Discussion

This study analyses for the first time how the Portuguese national health entities NHS and DGS communicated, during the first year of COVID-19, themes non-related to COVID-19.

Social media platforms emerged as a natural patient-healthcare services facilitator during the COVID-19 pandemic. The advantage of social media platforms to strengthen patient-healthcare professionals' communication and consequently improved health outcomes has been described years before the COVID-19 pandemic (Gunasekaran et al., 2022). The usefulness of these platforms is associated with the opportunity to disseminate information in a short period to a high number of users. Previous studies have demonstrated that social media platforms can be powerful tools in the achievement of national healthcare goals, for example during the smoking cessation and cancer prevention campaigns social media platforms proved very effective (Lenoir et al., 2017, Naslund et al., 2017).

Although the management of cancer and other chronic diseases has been considered essential to ensure health and economic outcomes, and chronic diseases and cancer have been associated with severe cases of COVID-19 diseases (World Health Organization, 2020a), themes related to non-communicable diseases and their prevention were associated with a low number of posts. This observation suggests that non-COVID-19-related themes were not prioritized which is in line with a study conducted by the World Health Organization in 155 countries that highlighted a major disruption in the management of the noncommunicable disease and their risk factors (World Health Organization, 2020b) which negatively impact the well-being of the frailty populations (Wong et al., 2020). Although the themes associated with the management and prevention of chronic diseases and the promotion of healthy living reached a high public engagement, this type of content was associated with a low number of publications suggesting that the posts of health entities were not in line with the public interest.

Otherwise, the most published themes, “Commemorative Dates”, “Miscellaneous” and “Emerging Preparedness and Response” presented low public engagement. This lack of concordance between publications and public interactions suggested that public health entities should rethink their performance in social media to maximize the use of social media platforms (Azevedo et al., 2022). Moreover, the few numbers of posts related to the management and prevention of non-communicable diseases can be associated with the increased number of patients with unstable chronic diseases.

This study provides data to health stakeholders to rethink the strategies used to manage non-communicable diseases through the utilization of social media platforms and highlights the need of developing new strategic approaches.

Although the relevant data provided by this study, some limitations must highlight namely the short period of the COVID-19 pandemic covered and the lack of socio-demographic profiles of the social media users.

5. Conclusions

During the COVID-19 pandemic, the Portuguese National Healthcare communicated beyond COVID-19 disease, but the prevention and management of non-communicable diseases was not relevant, suggesting a possible disruption in the management of non-communicable diseases.

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