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Title (Review)	Promoting health brands through social media. A quantitative analysis about the World's best cancer hospitals
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Journal Title	<i>Communication and Society</i>
Citation	Aguerrebere, P. M., Medina, E., & Pacanowski, T. G. (2022). Promoting health brands through social media. A quantitative analysis about the World's best cancer hospitals. <i>Communication and Society</i> , 35(4), 165-184. https://doi.org/10.15581/003.35.4.165-184
Link to Publisher Website	https://doi.org/10.15581/003.35.4.165-184
Link to CUD Digital Repository	http://hdl.handle.net/20.500.12519/713
Date added to CUD Digital Repository	October 20, 2022
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Submitted
November 5th, 2021
Approved
August 10th, 2022

© 2022
Communication & Society
ISSN 0214-0039
E ISSN 2386-7876
doi: 10.15581/003.35.4.165-184
www.communication-society.com

2022 – Vol. 35(4)
pp. 165-184

How to cite this article:
Medina Aguerrebere, P., Medina, E.
& González Pacanowski, T. (2022).
Promoting Health Brands through
Social Media. A Quantitative
Analysis about the World's Best
Cancer Hospitals. *Communication &
Society*, 35(4), 165-184.

Promoting Health Brands through Social Media. A Quantitative Analysis about the World's Best Cancer Hospitals

Abstract

Cancer hospitals enforce different initiatives to accelerate digital transformation, such as mobile health or artificial intelligence. Nevertheless, some health professionals are not willing to adopt these technologies. In order to change some employees' perspectives, these hospitals resort to social media platforms. This paper aims to evaluate how the world's best cancer hospitals manage social media platforms, as well as their corporate website, with the aim of disseminating brand-related content and reinforce their reputation. Therefore, we reviewed literature on cancer hospitals' corporate communication strategies, brand, social media platforms and online patient communities. We then resorted to 48 quantitative indicators to analyze how the 200 best cancer hospitals in the world managed Facebook, Twitter and YouTube, as well as their corporate website, for branding purposes. In order to identify the 200 best hospitals, we explored the World's Best Specialized Hospitals 2021, an annual ranking published by *Newsweek* and *Statista*. The 48 indicators covered different elements concerning the hospitals' identity and communication activities, as well as patient engagement on social media platforms. Our quantitative analysis proved that most cancer hospitals had a corporate website (70.5%) as well as a profile on Facebook (74%), Twitter (74.5%) and YouTube (67.5%). Nevertheless, most of them did not respect the 48 key performance indicators. Finally, we proposed three main conclusions: a) cancer hospitals should establish a Corporate Communication Department employing different experts in communication, health and big data; b) they should promote an integrated corporate communication approach; and c) they should implement brand ambassador programmes.

Keywords

Cancer, hospitals, communication, brand, reputation, social media.

1. Introduction

Cancer hospitals use technological tools, such as artificial intelligence, big data, mobile health or social media platforms, to accelerate their digital transformation, improve their medical services and, therefore, build a reputed brand. Nevertheless, they face different obstacles to

achieve this objective: strict legal frameworks, limited budgets and some employee's rejecting to leave their comfort zone and include these technological tools in their daily work. In order to overcome these difficulties, especially the latter, most cancer hospitals use social media platforms to help employees change their mindset, improve the company's internal processes and disseminate brand-related content. In other words, social media has become a powerful driver to accelerate digital transformation in cancer hospitals.

This paper aims to analyze how the best cancer hospitals in the world manage social media platforms, as well as their own corporate website, to disseminate brand-related content and, therefore, reinforce their corporate reputation. In this sense, we reviewed literature on cancer hospitals' corporate communication strategies; their interpersonal, internal and external communication initiatives, the brand's architecture, their use of social media for branding purposes and online patient communities. Subsequently, we evaluated how the 200 best cancer hospitals in the world managed their social media platforms (Facebook, Twitter, YouTube), as well as their own corporate website to promote their brand.

In order to do so, we applied 48 key performance indicators related to branding and reputation. This methodology helps cancer hospitals to evolve from a content analysis approach (key performance indicators and social media performance) to a strategic communication approach based on using data to implement practical communication initiatives on social media platforms. Finally, we proposed three main conclusions to help cancer hospitals enhance their performance when using social media platforms for branding purposes.

2. Cancer hospitals' corporate communication strategies

Cancer patients build an image of their oncologists based on their expertise and authority and consider cancer hospitals as a safe haven in the face of threat (Beesley *et al.*, 2016). Accordingly, doctor's communication skills to establish human relations based on empathy and respect are highly appreciated (Salmon & Bridget, 2017). Besides, these skills directly influence patients' behaviours (Peterson *et al.*, 2016) and that is why cancer hospitals should implement professional processes to efficiently train doctors in interpersonal communication skills (Medina Aguerrebere, González-Pacanowski, Medina, 2020).

On the other hand, these professionals should regulate their emotions and help patients to do the same (De Vries *et al.*, 2018). Thus, they can establish a collective decision-making process allowing patients to reinforce their empowerment (Peterson *et al.*, 2016) and tackle the six core functions of cancer patient-centred communication: managing uncertainty, responding to emotions, making decisions, fostering healing relationships, enabling self-management and exchanging information (Blanch-Hartigan *et al.*, 2016).

The hospitals' Corporate Communication Director establishes different plans and protocols to implement interpersonal, internal and external communication initiatives and, therefore, build a reputed brand that represents a true added value for the organization (Zerfass & Viertmann, 2017). According to Esposito (2017), a brand represents tangible and intangible assets that influence stakeholders' perceptions about the company.

Branding an organization is a human process, which involves, on the one hand, companies integrating social values, such as respect, ethics or multiculturalism (Medina Aguerrebere, 2018); and, on the other hand, they must work in a collective way alongside their internal and external stakeholders (Prochaska, Coughlin & Lyons, 2017). Besides, they should also implement personal branding campaigns focused on some key employees, such as doctors or nurses, and promote the hospital's brand through their behaviours and involvement in communication initiatives (Trepanier & Gooch, 2014).

Developing a credible brand constitutes an intellectual challenge, which is why cancer hospitals, before implementing any communication initiative, should clearly define their

brand architecture: *identity, values, mission, vision* and *culture* (Medina Aguerrebere, Gonzalez-Pacanowski, Medina, 2020).

Identity could be defined as the main reasons as to why the company's founders decided to create the organization (Veltri & Nardo, 2013). Based on that, companies enumerate and explain their *values*, in other words, some intangible ideas that they use to positively influence employees and help them achieve the company's goals (Sheehan & Isaac, 2014). The *mission* refers to the most important goals pursued by the company in the midterm (Cady *et al.*, 2011). Concerning the *vision*, this concept defines the company's long-term objectives and constitutes a true motivational element for every employee (Singal & Jain, 2013). Finally, the *culture* refers to the unique way in which all employees work in the company to create a tangible added value for every client (Nelson, Taylor & Walsh, 2014).

Cancer hospitals use social media as a corporate communication tool to promote their brand (Salmon & Bridget, 2017). These platforms represent four main advantages. First of all, these organizations can implement evidence-based practices on these platforms to help patients reinforce their empowerment, which positively influences their perceptions about the organization (Sedrak *et al.*, 2017). Secondly, cancer hospitals can implement health education initiatives and disseminate new clinical research insights (Yang *et al.*, 2018). Thirdly, these hospitals can also use social media to become a true reference to help patients avoid misinformation-related problems, which constitutes a true public health social engagement (Kotsenas *et al.*, 2018). And finally, thanks to social media, hospitals can improve patient health outcomes by providing them practical knowledge related to their treatment and disease (De las Heras Pedrosa *et al.*, 2020).

Nevertheless, using social media platforms as a corporate communication tool also represents two main challenges for cancer hospitals. On the one hand, they must deal with problems related to privacy, confidentiality, inaccurate medical advice, propagation of dangerous health behaviours and an overload of information (Attai *et al.*, 2016). On the other hand, these hospitals must become more democratic organizations and allow patients to publicly evaluate their employees and services (Mazor *et al.*, 2016).

Cancer hospitals rely on different social media platforms for their branding initiatives, such as Facebook, Twitter and YouTube. According to Kotsenas *et al.* (2018), *Facebook* helps organizations execute efficient communication campaigns by targeting messages based on interests and demographic characteristics. Nevertheless, in the health context, hospitals should not use Facebook to promote their own corporate' interests, but to satisfy patient needs in terms of information: health issues, personal experiences and social projects (Costa-Sánchez & Míguez-González, 2018). These organizations should use Facebook to provide patients with quality information useful for their health problems (Gage-Bouchard, *et al.*, 2017).

Concerning *Twitter*, this platform is essential to enrich the hospital's dialogue with its internal and external stakeholders (Park, Reber & Chon, 2016). Hospitals can use Twitter to share medical information, organize learning sessions and provide patients emotional support (Sedrak *et al.*, 2017). Besides, they should use Twitter to help patients focus their communication on positive inputs (cancer prevention, healthy habits) rather than negative aspects, such as the end of life or death (Sutton *et al.*, 2018).

Finally, *YouTube* helps cancer hospitals improve patients' understanding about treatments and diseases, as well as enhance their engagement with their own welfare (Basch *et al.*, 2015). This platform is a source of hope that allows patients to overcome negative emotions, such as fear, anger and sadness (Balasooriya-Smeekens, Walter & Scott, 2015). Nevertheless, many videos disseminated on this platform represent a public health risk, which is why hospitals should establish mechanisms on YouTube to protect patients against misinformation (Míguez-González, García Crespo & Ramahí-García, 2019).

When promoting their corporate brand on social media platforms, cancer hospitals also resort to online patient communities (Medina Aguerrebere, González-Pacanowski, Medina, 2020). These communities help cancer patients in different ways, such as emotional support, accurate information, learning initiatives or online consultations with oncologists (Falisi *et al.*, 2017). More patients resort to these online communities to improve their well-being, reinforce their empowerment and overcome social isolation (Attai *et al.*, 2016), which is why cancer hospitals should manage these patient communities in a professional way, involve different stakeholders (patients, families, doctors, advocates, policy makers) and monitor conversations (Sedrak *et al.*, 2017). Thanks to these communities, cancer hospitals can protect patients from misinformation-related risks (De Las Heras Pedrosa *et al.*, 2020). In other words, online patient communities help hospitals accelerate their digital transformation (Kotsenas *et al.*, 2018).

Social media has become an essential tool for hospitals' corporate communication strategies, but also for cancer patients' personal and medial experiences: ten reasons allow us to affirm that. First of all, thanks to social media platforms, cancer patients overcome the negative impact of this disease on their emotional status (Aggarwal *et al.*, 2020). Second, social media plays a key role in patients' well-being because it helps patients to better understand their own beliefs (Niu, Bhurosy, Heckman, 2021). Third, many cancer survivors feel a responsibility to share their authentic experience on these platforms in order to help other patients mitigate their feelings of uncertainty (Wellman, Holton, Kaphingst, 2022). Fourth, these platforms provide cancer patients medical information allowing to reduce their distress (Bender *et al.*, 2021). Fifth, using social media allows patients to share medical and personal information with their doctors and nurses (Lee *et al.*, 2021). Sixth, thanks to social media, patients better understand hospitals' internal functioning, which helps them to participate in medical procedures in a more efficient way (Guan *et al.*, 2021). Seventh, using social media for medical reasons reinforces patients' engagement with treatment and screenings (Paige *et al.*, 2020). Eighth, social media enhances cancer patients' empowerment, as well as their skills in health education (Bochenek-Cibor *et al.*, 2020). Ninth, patients reinforce their own identity by using social media for celebrating milestones, honouring survivors and promoting rebirths (Cherian *et al.*, 2020). And tenth, social media allows patients and doctors to improve their interpersonal communication skills and build better relations among them (Martin, MacDonald, 2020).

3. Methodology

Cancer hospitals face a complicated challenge when using social media platforms to promote their brand. With the objective of understanding in a clearer way how these organizations manage social media platforms, we conducted a quantitative analysis based on the World's Best Specialized Hospitals 2021, a ranking annually published by *Newsweek* and *Statista Inc.*, and specialized in different diseases, such as cardiology, endocrinology, neurology, orthopaedics, gastroenterology and oncology. For this paper, we only focused on oncology.

The methodology used to elaborate this ranking is based on three main stages: 1) more than 40,000 doctors, health professionals and hospital managers in over 20 countries participate in an online survey to recommend hospitals based on their expertise; 2) different experts rate a number of hospitals and assign a ranking score; and 3) based on both data, an overall reputation score (0 to 100%) is calculated for every hospital, a list is created and this list is validated by a board of medical experts from different countries¹.

¹ More information about this methodology is available on <https://d.newsweek.com/en/file/460542/wbsh2021-methodology.pdf>.

This ranking identifies the 200 best cancer hospitals in the world (see Annex 1 List of all hospitals analyzed²). In order to better understand how these hospitals managed social media to promote their brand, we analyzed four online platforms: a) their corporate website, which is essential to promote the hospitals' brand and reputation (Bardach *et al.*, 2013); b) Facebook, the most used social media platform by citizens and companies³; c) Twitter, one of the best social media platforms that health organizations can use to reinforce their relations with stakeholders, especially with patients (Chung, 2016); and d) YouTube, the most used social media platform to share videos about health education, medical treatments and medical research (Kotsenas *et al.*, 2018).

We considered 48 indicators to evaluate cancer hospitals' performance on social media. These indicators were grouped on three main categories: a) identity; b) communication activities; and c) patient engagement (see Table 1. Indicators). These 48 indicators cover five essential areas that cancer hospitals should consider when putting corporate communication strategies in place on social media platforms.

First, cancer patients face stressful situations that lead them to search for medical information (Moore *et al.*, 2018), which is why hospitals need to help them by proposing different links to medical departments, research units and search engines (doctors' personal information, diseases). Second, patients' relationships with cancer hospitals are determined by the information that they have about these organizations (Kim *et al.*, 2016): this fact should lead hospitals to describe their history, milestones, awards and medical treatments in different languages. Third, several researchers, such as Ernawaty *et al.* (2020), have proved that brand equity improves patients' engagement with hospitals, which is why these organizations should disseminate branded-related content (corporate values, mission, vision and logo). Fourth, as explained by Halpin, Konomos and Roulston (2022), visual tools, such as videos, pictures or graphs, help patients to better understand medical concepts: as a matter of fact, cancer hospitals should resort to videos, playlists, media sections and channels to help patients improve their knowledge. And fifth, cancer hospitals should propose to patients different platforms and mobile applications allowing them to protect their privacy. As stated by Klabunde *et al.* (2017), customization and privacy positively affect cancer patients' experience with hospitals. These hospitals integrate these five concepts and evaluate its impact in a quantitative way (number of likes and followers).

Thanks to these indicators, we evaluated in a quantitative way to which extent hospitals resorted to these platforms to promote brand related content. On the four aforementioned platforms, we tried to homogenize all indicators. Nevertheless, we also respected the different indicators proposed by each of them. We only evaluated hospital corporate profiles and no other secondary profiles (departments, medical units, special events, etc.). This quantitative analysis was conducted from 1st September to 23rd October 2021.

In conclusion, we selected 200 analysis units (hospitals) to examine 4 variables (corporate website, Facebook, Twitter and YouTube) according to 48 indicators grouped into three categories (identity, communication activities and patient engagement). In order to analyze these indicators, we used the binary system, except for 7 of them that were evaluated as absolute numbers: Facebook (11, 12), Twitter (9,11,12) and YouTube (11,12). When analyzing all of them, we only considered inputs that we could immediately spot on the homepage, the "About Us" section or the "Information" section, but not those for which we had to click more than once and browse on different internal menus.

² Document retrieved on 13th August 2021 from <https://www.newsweek.com/worlds-best-specialized-hospitals-2021/oncology>.

³ In June 2021, more than 2,89 active users resorted to Facebook to read and share content, which means that this platform was the most used social media in the world. Document retrieved on 15th September 2021 on <https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/>

Table 1. Indicators.

Corporate website	Facebook	Twitter	YouTube
Identity*			
1. Corporate logo	1. Corporate logo	1. Corporate logo	1. Corporate logo
2. Multilingual website	2. Links to corporate websites	2. Links to corporate websites	2. Links to corporate websites
3. Links to medical departments	3. Hospital description	3. Hospital description	3. Hospital description
4. Find doctors	4. Milestones	4. Joined date	4. Milestones
5. Find diseases	5. Awards	5. Foundation date	5. Awards
6. Links to research and education departments	6. Brand values	6. Hashtags on the description	6. Brand values
7. Link to the communication department	7. Mission	7. Health professionals or hospital buildings on the main image	7. Mission
8. Links to social media platforms	8. Vision	8. Links to other social media platforms	8. Vision
Communication activities**			
9. Videos on the homepage	9. Integrated videos	9. Number of followers	9. Playlists
10. Press releases on the homepage	10. Events	10. Media section with videos	10. Channels
Patient's engagement***			
11. Patient platform	11. Number of likes	11. Number of likes	11. Number of subscribers
12. Mobile apps	12. Number of followers	12. Number of followers	12. Number of views

*Homepage on the corporate website and Twitter; "About Us" section on YouTube; and "Information" section on Facebook.

** Homepage on all platforms.

*** Homepage on all platforms.

Source: Own elaboration.

4. Results

Cancer hospitals reinforce their online presence by developing branding initiatives on their own corporate website, as well as on other platforms, such as Facebook, Twitter and YouTube. Disseminating meaningful content is mandatory to become a credible brand and influence stakeholders' perceptions. Nevertheless, many of these organizations face different barriers (lack of human and economic resources, legal constraints, etc.) that prevent them from managing these platforms in an efficient way. In order to explain how the best cancer hospitals in the world use these platforms for branding purposes, we present our quantitative data grouped into four main categories: corporate website, Facebook, Twitter and YouTube.

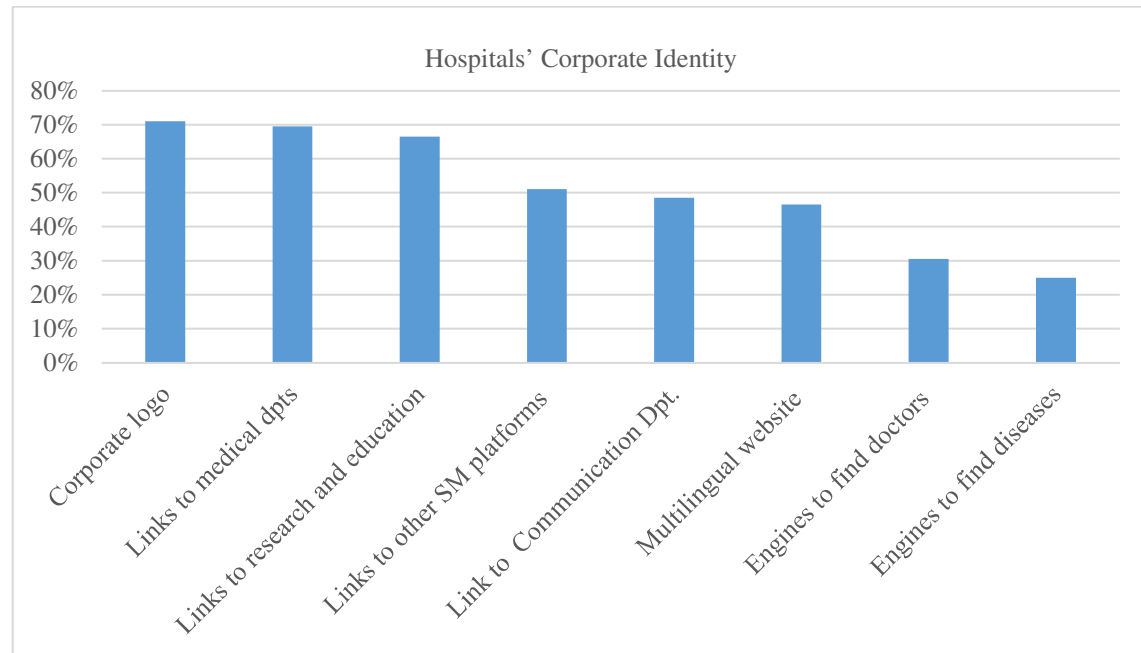
4.1. Corporate website

Developing a corporate website in English to influence stakeholders worldwide and become a global brand constitutes a priority for cancer hospitals. In terms of visibility (search engine marketing and search engine optimization), it is crucial to have a corporate website in English. Nevertheless, only 70.5% of the analyzed hospitals had a corporate website in English⁴. As

⁴ We did not consider websites in local languages (Spanish, Chinese, French, etc.). We only focused on corporate websites in English. On the other hand, we analyzed the hospital's corporate website and not the oncology department website.

showed in Image 1, most analyzed hospitals did not respect all criteria related to corporate identity: corporate logo on the homepage (71%), links to medical departments (69.50%), links to research and education sections (66.50%), links to other social media platforms (51%), link to the communication department (48.50%), multilingual website (46.50%) and search engines to find doctors (30.50%) and diseases (25%).

Image 1. Corporate identity.



Source: Own elaboration.

With respect to communication activities, 33.50% of hospitals displayed videos and 49% of them also showcased press releases. Regarding patient engagement, 29.50% proposed a patient platform and 7% a corporate mobile app. On the other hand, 57.44% of hospitals respected between 7 and 10 indicators (see Table 2. Indicator distribution) and only 4 of them fulfilled all criteria: The Mount Sinai Hospital (USA), Cedars-Sinai Medical Center (USA), MD Anderson Cancer Center – Madrid (Spain) and National Cancer Centre Singapore (Singapore).

Table 2. Indicator distribution.

Number of indicators	Number of hospitals
12	4
11	6
10	23
9	22
8	15
7	21
6	23
5	6
4	14
3	7
2	0
1	0
0	59

Source: Own elaboration.

4.2. Facebook

On Facebook, we considered their profiles in English, but also those in local languages (French, Chinese, Spanish, etc.), because local patients have the right to communicate with their doctors in English or in their local language⁵. Our findings proved that 74% of the analyzed cancer hospitals had a corporate profile on Facebook. However, most of them did not respect the main criteria related to identity: links to corporate websites (99%), logo as their main profile image (88.51%), corporate description (88.51%), milestones (45.95%), awards (22.97%), mission (7.76%), brand values (5.40%) and vision (0.67%).

Concerning communication activities, all hospitals integrated videos on their corporate profile and 76.35% also displayed a link to the “Events section. With respect to patient engagement, the bests hospitals according to number of likes and followers were Cleveland Clinic and Cleveland Clinic Fairview Hospital (see Table 3. Ten best hospitals according to number of likes and followers). Finally, considering the ten criteria related to identity and communication activities, 70.95% of the analyzed hospitals fulfilled between 5 and 7 criteria, and the only one respecting all criteria was Sunnybrook Health Sciences Centre (Canada).

Table 3. Ten best hospitals according to number of likes and followers.

	Hospital	Number of likes	Number of followers
1	Cleveland Clinic (USA), Cleveland Clinic Fairview Hospital (USA)*	2 025 864	1 951 397
2	Hospital Oswaldo Cruz (Brazil)	1 594 466	1 597 369
3	Mayo Clinic - Rochester (USA), Mayo Clinic - Phoenix (USA), Mayo Clinic - Jacksonville (USA)**	1 201 183	1 223 205
4	Hospital Israelita Albert Einstein (Brazil)	831 287	839 704
5	The Johns Hopkins Hospital (USA)	652 756	661 214
6	Dana-Farber Cancer Institute (USA)	436 660	431 477
7	MD Anderson Cancer Center (USA)	366 234	372 209

*Cleveland Clinic and Cleveland Clinic Fairview Hospital shared the same profile on Facebook.

**Mayo Clinic in Rochester, Phoenix and Jacksonville used the Mayo Clinic's corporate profile on Facebook.

Source: Own elaboration.

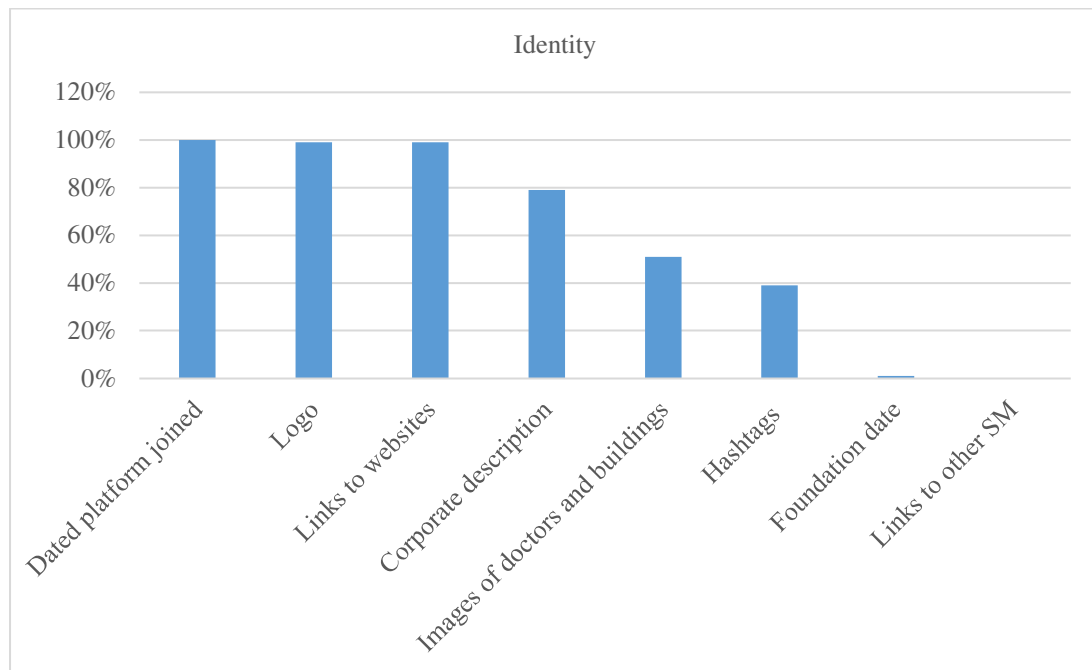
4.3. Twitter

On Twitter, we also considered cancer hospitals' corporate profiles in English and in their local languages⁶. According to our quantitative analysis, 74.5% of hospitals had a corporate profile on this platform, but many of them did not respect the criteria related to identity, as showed in Image 2: date when they joined the platform (100%), logo as their main profile image (99.32%), links to corporate websites (99.32%), corporate description (79.87%), health professionals or hospital buildings on their main profile image (51.68%), hashtags in their description (39.6%), foundation date (1.34%) and links to other social media platforms (0%).

⁵ In some cases, cancer hospitals showcased on their local language corporate website a link to Facebook, but they did not do the same on their English corporate website. In other cases, some hospitals put a link to Facebook on their local language corporate website, but they did not have an English version for their corporate website.

⁶ As on Facebook, some cancer hospitals showcased on their local language corporate website a link to Twitter, but they did not do the same on their English corporate website. In other cases, some hospitals put a link to Twitter on their local language corporate website, but they did not have an English version for their corporate website.

Image 2. Identity.



Source: Own elaboration.

Concerning communication activities, 98.66% of hospitals displayed a media section including videos and the best ones according to number of followings were Keck Hospital of USC (USA) (150 876), Dana-Farber Cancer Institute (USA) (99 878) and Vanderbilt University Medical Center (USA) (16 804). In terms of patient engagement, the best cancer hospitals according to number of likes were Hospital Clínic de Barcelona (Spain) (44 901), MD Anderson Cancer Center (Spain) (31 400) and Hospital Universitari Vall d'Hebron (Spain) (30 600). On the other hand, the best hospital according to number of followers was Mayo Clinic (see Table 4. Ten best hospitals according to number of followers).

Table 4. Ten best hospitals according to number of followers.

	Hospital	Number of followers
1	Mayo Clinic - Rochester (USA), Mayo Clinic - Phoenix (USA), Mayo Clinic - Jacksonville (USA)*	2 032 831
2	Cleveland Clinic (USA), Cleveland Clinic Fairview Hospital (USA)**	1 925 134
3	The Johns Hopkins Hospital (USA)	613 178
4	Keck Hospital of USC (USA)	200 545
5	MD Anderson Cancer Center (USA)	119 083
6	Dana-Farber Cancer Institute (USA)	104 738
7	Memorial Sloan Kettering Cancer Center (USA)	90 873

*Mayo Clinic in Rochester, Phoenix and Jacksonville used the Mayo Clinic's corporate profile on Twitter.

**Cleveland Clinic and Cleveland Clinic Fairview Hospital shared the same profile on Twitter.

Source: Own elaboration.

4.4. YouTube

Concerning YouTube, we also analyzed cancer hospitals' corporate profiles in English and in their local languages⁷. We proved that 67.5% of hospitals had a corporate profile on this platform. However, most of them did not fulfil many criteria related to identity: logo on the main profile image (100%), links to corporate websites (98.52%), corporate description (73.33%), milestones (22%), awards (8.89%), mission (4.44%), brand values (4%) and vision (1%). Regarding, 95% of hospitals displayed playlists and 60% also proposed channels.

With respect to patient engagement, the best hospital according to number of subscribers was Asan Medical Center (South Korea) (60 353 260) and the best one according to number of views was Mayo Clinic (USA) (see Table 5. Hospitals according to number of views). Finally, considering only the 10 indicators related to communication activities and identity, 79.26% of the analyzed cancer hospitals respected between 4 and 6 indicators, and the only one fulfilling all of them was Sunnybrook Health Sciences Centre (Canada).

Table 5. Best hospitals according to number of views.

	Hospital	Number of views
1	Mayo Clinic - Rochester (USA), Mayo Clinic - Phoenix (USA), Mayo Clinic - Jacksonville (USA)*	253 172 848
2	Cleveland Clinic (USA), Cleveland Clinic Fairview Hospital (USA)**	103 036 837
3	Ronald Reagan UCLA Medical Center (USA), UCLA Medical Center - Santa Monica (USA).***	82 880 111
4	MD Anderson Cancer Center (USA)	64 007 485
5	University of Michigan Hospitals - Michigan Medicine (USA)	61 426 330
6	The Johns Hopkins Hospital (USA), Johns Hopkins Bayview Medical Center (USA)****	57 956 962

*Mayo Clinic in Rochester, Phoenix and Jacksonville used the Mayo Clinic's corporate profile on YouTube.

**Cleveland Clinic and Cleveland Clinic Fairview Hospital shared the same profile on YouTube.

***Ronald Reagan UCLA Medical Center and UCLA Medical Center - Santa Monica used the same corporate profile on YouTube.

**** The Johns Hopkins Hospital and Johns Hopkins Bayview Medical Center shared the same profile on YouTube.

5. Discussion

Social media have become a true corporate communication tool allowing hospitals to promote their brand (Triemstra, Stork & Arora, 2018). Thanks to these platforms, hospitals understand in a clearer way how patients conceptualize their specific health issues (Sedrak *et al.*, 2016), which helps these organizations to adapt their communication strategies and establish richer relationships with patients (Mazor *et al.*, 2016). Besides, social media allows hospitals to establish cancer campaigns to promote health education (Vraga *et al.*, 2018), as well as associate their brand with quality knowledge, which reinforces their scientific credibility (Yang *et al.*, 2018).

In order to make these platforms profitable from a communication point of view, cancer hospitals should define a communication strategy before implementing any communication initiative on Facebook, Twitter, or YouTube. This strategy includes four main elements: a)

⁷ As for Facebook and Twitter, some cancer hospitals showcased on their local language corporate website a link to YouTube, but they did not do the same on their English corporate website. In other cases, some hospitals put a link to YouTube on their local language corporate website, but they did not have an English version for their corporate website.

communication objectives; b) main and secondary targets; c) brand positioning; and d) evaluation system.

In terms of communication objectives, thanks to corporate communication, cancer patients make sense of their disease and engage in social support (Badr, Carmack & Diefenbach, 2017), doctors establish better relationships with patients and improve their health outcomes (Brand, Fasciano & Mack, 2017) and, at the same time, hospitals enhance their own corporate reputation (Medina Aguerrebere, 2018). That is why cancer hospitals should define accurate communication objectives allowing them to optimize their effort on social media platforms when implementing branding initiatives.

According to our data, most of the analyzed cancer hospitals in this paper had a corporate website (70.5%), as well as a profile on Facebook (74%), Twitter (74.5%) and YouTube (67.5%). Besides, most of them fulfilled many of the 48 indicators, which means that they use these platforms in a professional way according to the previously defined communication objectives. Nevertheless, some of them do not display a website in English, which constitutes a serious barrier to become a globally reputed brand.

Regarding the main and secondary targets, cancer hospitals should use social media platforms to communicate with different stakeholders and not only with patients. For instance, they can interact with media companies to share medical information (Kotsenas *et al.*, 2018) and with public health authorities to launch health education campaigns (Yang *et al.*, 2018). Nevertheless, we proved that most cancer hospitals analyzed in this paper focused their social media efforts on patients. Most of them resorted to the corporate website to help patients find medical information: links to medical departments (69.50%) and engines to find doctors (30.50%) and diseases (25%).

However, some cancer hospitals also focused on other stakeholders, such as media companies (on Facebook, 76.3% of hospitals proposed an “Event” section where journalists could read accurate information about the hospital’s corporate initiatives), international patients (46.50% of hospitals had a multilingual website in English and other languages, such as Spanish and Chinese) and patients’ associations (on YouTube, 60% of hospitals proposed different channels specialized in health education for different kinds of patients).

Concerning brand positioning, according to Wang *et al.*, (2011), the brand refers to the hospital’s logo, but also to patients’ experiences when interacting with the organization. Using social media constitutes a risk because some patients can take advantage of these platforms to criticize the hospital (Lagu *et al.*, 2016). Nevertheless, these organizations should be present on social media, as they need to build their brand in a collective way alongside stakeholders (Blomgren, Hedmo & Waks, 2016).

Our findings proved that most cancer hospital did not optimize their social presence for branding purposes. Even if most of them used their logo as the main image on their profile on YouTube (100%), Twitter (99.32%) and Facebook (88.51%), their branding efforts were not efficient enough. In fact, most of them did not share brand related content, such as the mission (6.76% on Facebook, 4.44% on YouTube), vision (0.67% on Facebook, 1% on YouTube) or brand values (5.40% on Facebook, 4% on YouTube).

As for evaluation, an efficient online communication strategy requires hospitals to constantly analyze audiences (De Las Heras Pedrosa *et al.*, 2020), interpret this data in order to adapt every communication decision (Garga *et al.*, 2010) and, therefore, focus on content that engages stakeholders and reinforces the hospital’s brand (Yang *et al.*, 2018). Most cancer hospitals implemented different evaluation systems to analyze their social media presence impact on stakeholders’ perceptions. For example, most of them considered the number of followers and likes (Facebook and Twitter), as well as the number of subscribers and views (YouTube).

Based on our quantitative data, we can confirm that the best hospitals on Facebook were Cleveland Clinic (USA) and Cleveland Clinic Fairview Hospital (USA) (number of likes and

followers); on Twitter, Hospital Clínic de Barcelona (Spain) (number of likes) and Mayo Clinic (USA) (number of followers); and on YouTube, Asan Medical Center (South Korea) (number of subscribers) and Mayo Clinic (USA) (number of views).

Most cancer hospitals resort to social media platforms and their own corporate website to reinforce their relations with stakeholders and, therefore, build a reputed brand. Even if this quantitative and qualitative analysis allows us to better understand how the world's best cancer hospitals manage social media platforms for branding purposes, we should also highlight two limitations. First, we could not access private information, such as the hospitals' corporate communication plans or reports analyzing stakeholders' perceptions about the hospital's social media presence. Secondly, we could not identify other papers published about the same topic and based on the same methodology, which is the reason why we could not compare our results.

Accordingly, we recommend researchers interested in delving into this topic over the next years to focus on some strategic issues, such as how cancer hospitals monetize their social media presence in order to optimize their economic investments, how patients react to different kinds of contents disseminated on these platforms, and how these hospitals could integrate social media into some internal medical protocols in order to better satisfy patients' needs, accelerate the hospital's digital transformation and build a reputed brand. Researchers should employ both quantitative and qualitative techniques (content analysis, deep interviews, focus groups, etc.) in order to help cancer hospitals to implement tangible initiatives allowing them to make their brands more dynamic.

6. Conclusion

Cancer hospitals implement different initiatives to accelerate their digital transformation and propose a better medical service for patients. Social media platforms, mobile health, big data and artificial intelligence can improve these organizations' performance and help them become digital hospitals. However, some health professionals are not willing to integrate these technological tools into their daily tasks, which represents a true threat for these hospitals. In this framework, social media has become a powerful driver to change employees' mentalities and accelerate the hospitals' digital transformation.

This paper aimed to evaluate how the world's best cancer hospitals manage their social media platforms, as well as their own corporate website, to promote their brand and build their reputation. The quantitative methodology used for this paper contributes to making cancer hospitals' brands more dynamic focusing on key elements that these organizations analyze to make practical decisions concerning their communication strategies on social media platforms.

To conclude, we propose three final ideas allowing cancer hospitals to improve their performance on social media platforms. First, cancer hospitals should establish a Corporate Communication Department where experts in public relations, public health, big data and artificial intelligence define an annual communication plan to promote social media as a corporate communication tool, as well as a strategic element being part of internal medical protocols. Second, cancer hospitals should implement an integrated corporate communication approach with the main objective of developing meaningful content for each stakeholder and forget about the journalistic-promotional approach based on publishing press releases and promoting medical treatments. Finally, these hospitals should train some of their employees (doctors, nurses, etc.) in corporate communication skills in order to help them become brand ambassadors able to deal directly with stakeholders on different social media platforms.

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Annex 1: List of all analyzed hospitals

1. MD Anderson Cancer Center (USA)
2. Memorial Sloan Kettering Cancer Center (USA)
3. Dana-Farber Cancer Institute (USA)
4. Mayo Clinic - Rochester (USA)
5. Institut Gustave Roussy (France)
6. Charité - Universitätsmedizin Berlin (Germany)
7. Asan Medical Center (South Korea)
8. The Johns Hopkins Hospital (USA)
9. Samsung Medical Center (South Korea)
10. The Princess Margaret Cancer Centre (Canada)
11. IEO - Istituto Europeo di Oncologia (Italy)
12. Seoul National University Hospital (South Korea)
13. The Royal Marsden Hospital - London (UK)
14. Hospital Universitario La Paz (Spain)
15. Fondazione IRCCS (Italy)
16. National Cancer Center Hospital (Japan)
17. Cleveland Clinic (USA)
18. The Catholic University of Korea - Seoul St. Mary's Hospital (South Korea)
19. Universitätsklinikum Köln (Germany)
20. Hospital Universitari Vall d'Hebron (Spain)
21. Hospital Israelita Albert Einstein (Brazil)
22. Peter MacCallum Cancer Centre (Australia)
23. Massachusetts General Hospital (USA)
24. Universitätsklinikum Heidelberg (Germany)
25. Istituto Clinico Humanitas (Italy)
26. The Mount Sinai Hospital (USA)
27. Severance Hospital - Yonsei University (South Korea)
28. Hospital Sirio Libanes (Brazil)
29. Universitätsklinikum Hamburg-Eppendorf (Germany)
30. A.C. Camargo Cancer Center (Brazil)
31. Institut Curie (France)
32. Johns Hopkins Bayview Medical Center (USA)
33. Mayo Clinic - Phoenix (USA)
34. Azienda Ospedaliera di Padova (Italy)
35. Clinica Universidad de Navarra (Spain)
36. The Christie (UK)
37. National Cancer Center (South Korea)
38. Hokkaido University Hospital (Japan)
39. Cancer Research Ariake Hospital (Japan)
40. Istituto Nazionale Tumori di Napoli - Fondazione G. Pascale (Italy)
41. Keio University Hospital (Japan)
42. The University of Tokyo Hospital (Japan)
43. Universitätsklinikum Essen (Germany)
44. Hôpital Universitaire Pitié Salpêtrière (France)
45. Hospital Universitario 12 de Octubre (Spain)
46. Addenbrooke's (UK)
47. National Cancer Center Hospital East (Japan)
48. Fundación Instituto Valenciano de Oncología (Spain)
49. Grande Ospedale Metropolitano Niguarda (Italy)

50. Shizuoka Cancer Center (Japan)
51. A.O.U. Città della Salute e della Scienza (Italy)
52. Austin Hospital - Heidelberg (Australia)
53. Azienda Ospedaliera Universitaria Sant'Andrea (Italy)
54. Barnes-Jewish Hospital (USA)
55. Beth Israel Deaconess Medical Center (USA)
56. BP - A Beneficência Portuguesa de São Paulo (Brazil)
57. Cedars-Sinai Medical Center (USA)
58. Centre Antoine Lacassagne (France)
59. Centre Léon-Bérard (France)
60. Centres de Lutte contre le Cancer (France)
61. Chiba University Hospital (Japan)
62. Chonnam National University - Hwasun Hospital (South Korea)
63. CHU Grenoble - Site Nord (France)
64. CHU de Bordeaux (France)
65. City of Hope Comprehensive Cancer Center (USA)
66. Cleveland Clinic Fairview Hospital (USA)
67. CRLCC François Baclesse (France)
68. Duke University Hospital (USA)
69. Erasmus Medisch Centrum (Netherlands)
70. Fondazione del Piemonte per l'Oncologia - IRCCS (Italy)
71. Freeman Hospital (UK)
72. Gangnam Severance Hospital - Yonsei University (South Korea)
73. Guy's Hospital (UK)
74. Hammersmith Hospital (UK)
75. Helios Klinikum Berlin-Buch (Germany)
76. Hôpital Bichat - Claude-Bernard (France)
77. Hôpital Claude-Huriez (France)
78. Hôpital Cochin (France)
79. Hôpital Européen Georges Pompidou (France)
80. Hôpital Hôtel-Dieu (France)
81. Hôpital Lyon Sud (HCL) (France)
82. Hôpital Paris Saint-Joseph (France)
83. Hôpital Saint-Antoine (France)
84. Hôpital Saint-Louis (France)
85. Hospital Clínic de Barcelona (Spain)
86. Hospital Clínico San Carlos (Spain)
87. Hospital das Clinicas da Universidade de Sao Paulo (Brazil)
88. Hospital de la Santa Creu i Sant Pau (Spain)
89. Hospital General Universitario Gregorio Marañón (Spain)
90. Hospital of the University of Pennsylvania - Penn Presbyterian (USA)
91. Hospital Oswaldo Cruz (Brazil)
92. Hospital Ramón y Cajal (Spain)
93. Hospital Ruber Internacional (Spain)
94. Hospital Santa Catarina (Brazil)
95. Hospital Universitari de Bellvitge (Spain)
96. Hospital Universitario HM Montepríncipe (Spain)
97. Hospital Universitario Puerta de Hierro (Spain)
98. Hospital Universitario Virgen del Rocío (Spain)
99. Hospital Universitario y Politécnico la Fe (Spain)
100. Houston Methodist Hospital (USA)

101. I.R.C.C.S. Istituto Oncologico Veneto (Italy)
102. Indiana University Health Medical Center (USA)
103. Inselspital Bern (Switzerland)
104. Institut Bergonié (France)
105. Institut de Cancérologie de Lorraine (France)
106. Institut de Cancérologie de l'Ouest Paul Papin (France)
107. Institut de Cancérologie de l'Ouest René Gauducheau (France)
108. Institut Mutualiste Montsouris (France)
109. Institut Paoli-Calmettes (France)
110. Institut Régional du Cancer (France)
111. Instituto do Cancer do Estado de Sao Paulo (Brazil)
112. IUCT Oncopole (France)
113. John Radcliffe Hospital (UK)
114. Kameda Medical Center (Japan)
115. Karolinska Universitetssjukhuset (Sweden)
116. Keck Hospital of USC (USA)
117. Kliniken Essen-Mitte – Standort Essen-Huttrop (Germany)
118. Klinikum der Universität München (Germany)
119. Klinikum rechts der Isar der Technischen Universität München (Germany)
120. Konkuk University Medical Center (South Korea)
121. Korea Cancer Center Hospital (South Korea)
122. Korea University – Anam Hospital (South Korea)
123. Korea University – Guro Hospital (South Korea)
124. Kurashiki Central Hospital (Japan)
125. Kyoto University Hospital (Japan)
126. KyungHee University Medical Center (South Korea)
127. Kyushu University Hospital (Japan)
128. Leeds General Infirmary (UK)
129. Martini-Klinik am UKE (Germany)
130. Mayo Clinic – Jacksonville (USA)
131. MD Anderson Cancer Center – Madrid (Spain)
132. Medizinische Hochschule Hannover (Germany)
133. Moffitt Cancer Center (USA)
134. Montreal General Hospital – McGill University Health Centre (Canada)
135. National Cancer Centre Singapore (Singapore)
136. National Hospital Organization Kyushu Cancer Center (Japan)
137. New York–Presbyterian Hospital–Columbia and Cornell (USA)
138. Northwestern Memorial Hospital (USA)
139. Nuffield Health – Cambridge Hospital (UK)
140. NYU Langone Hospitals (USA)
141. Ohio State University Wexner Medical Center (USA)
142. OHSU Hospital (USA)
143. Okayama University Hospital (Japan)
144. Osaka Medical College Hospital (Japan)
145. Osaka University Hospital (Japan)
146. Ospedale San Raffaele – Gruppo San Donato (Italy)
147. Policlinico Umberto I (Italy)
148. Policlinico Universitario A. Gemelli (Italy)
149. Queen Elizabeth Hospital Birmingham (UK)
150. Ronald Reagan UCLA Medical Center (USA)
151. Roswell Park Cancer Institute (USA)

152. Royal Brisbane & Women's Hospital (Australia)
153. Royal Prince Alfred Hospital (Australia)
154. Seoul National University – Bundang Hospital (South Korea)
155. St George's Hospital (UK)
156. St Mary's Hospital (UK)
157. St. Bartholomew's Hospital (UK)
158. St. Luke's International Hospital (Japan)
159. Stanford Health Care – Stanford Hospital (USA)
160. Strong Memorial Hospital – University of Rochester (USA)
161. Sunnybrook Health Sciences Centre (Canada)
162. Teine Keijinkai Hospital (Japan)
163. The Alfred (Australia)
164. The Catholic University Of Korea – Yeouido St. Mary's Hospital (South Korea)
165. The Clatterbridge Cancer Center (UK)
166. The Royal Marsden Hospital – Surrey (UK)
167. The Royal Victoria Hospital – McGill University Health Centre (Canada)
168. Thoraxklinik Heidelberg (Germany)
169. Tohoku University Hospital (Japan)
170. Tokyo Medical and Dental University – Medical Hospital (Japan)
171. Tokyo Metropolitan Komagome Hospital (Japan)
172. Toranomon Hospital (Japan)
173. UCLA Medical Center – Santa Monica (USA)
174. UCSF Medical Center (USA)
175. Universitätsklinikum Bonn (Germany)
176. Universitätsklinikum Carl Gustav Carus Dresden (Germany)
177. Universitätsklinikum Düsseldorf (Germany)
178. Universitätsklinikum Frankfurt (Germany)
179. Universitätsklinikum Freiburg (Germany)
180. Universitätsklinikum Jena (Germany)
181. Universitätsklinikum Leipzig (Germany)
182. Universitätsklinikum Münster (Germany)
183. Universitätsklinikum Regensburg (Germany)
184. Universitätsklinikum Schleswig-Holstein – Campus Lübeck (Germany)
185. Universitätsklinikum Tübingen (Germany)
186. Universitätsklinikum Ulm (Germany)
187. Universitätsklinikum Würzburg (Germany)
188. Universitätsmedizin der Johannes Gutenberg-Universität Mainz (Germany)
189. Universitätsmedizin Göttingen (Germany)
190. Universitätsspital Zürich (Switzerland)
191. University Hospital of Wales (UK)
192. University Hospital, Kyoto Prefectural University of Medicine (Japan)
193. University of Chicago Medical Center (USA)
194. University of Michigan Hospitals – Michigan Medicine (USA)
195. University of North Carolina Hospitals (USA)
196. University of Washington Medical Center (USA)
197. University of Wisconsin Hospitals (USA)
198. UPMC Presbyterian & Shadyside (USA)
199. Vanderbilt University Medical Center (USA)
200. Westmead Hospital (Australia)