

# Promoting Hospitals' Brand Reputation through Mobile Apps. A Quantitative Analysis about the Best Hospitals in Spain

*Ospitale-markaren ospea sustatzea mobile app-en bidez.  
 Espainiako ospitale onenei buruzko analisi kuantitatiboa*

La promoción de la reputación de marca hospitalaria a través de las *mobile apps*.  
 Un análisis cuantitativo sobre los mejores hospitales de España

Pablo Medina Aguerrebere\*, Eva Medina, Toni González Pacanowski

Canadian University Dubai  
 Universidad de Alicante

**ABSTRACT:** This paper aims to evaluate how hospitals manage mobile applications to reinforce their relations with patients and promote their brands. To do that, we conducted a literature review about hospitals' corporate communication, their branding initiatives, and their use of mobile apps for this purpose; then, we defined 36 indicators to quantitatively analyze how the 150 best hospitals in Spain managed mobile apps to promote their brands: on-line integration, global app for patients, mobile apps for other targets, and mobile apps for patients facing non communicable diseases. We concluded that hospitals should follow a public health and branding logic to develop mobile apps that contribute to establish a new communication paradigm among these organizations and their patients.

**KEYWORDS:** hospitals; brand; reputation: mobile apps; patients.

**RESUMEN:** Este artículo evalúa cómo los hospitales gestionan las aplicaciones móviles para reforzar sus relaciones con el paciente y así promover sus marcas. Para ello, realizamos una revisión de literatura sobre la comunicación corporativa de estas organizaciones, sus iniciativas de marca y sus uso de las aplicaciones móviles en esta área; posteriormente, definimos 36 indicadores para analizar de un modo cuantitativo cómo los 150 mejores hospitales de España utilizan las aplicaciones móviles para promocionar sus marcas: integración online, app general para pacientes, apps para otros públicos, y apps para pacientes que sufren enfermedades no transmisibles. Concluimos que los hospitales deberían seguir una lógica de salud pública y de marca para desarrollar aplicaciones móviles que contribuyan a implementar un nuevo paradigma comunicativo entre dichas organizaciones y sus pacientes.

**PALABRAS CLAVE:** hospitales; marca; reputación: aplicaciones móviles; pacientes.

\* **Corresponding author:** Pablo Medina Aguerrebere. Faculty of Communication, Arts and Sciences. Canadian University Dubai. City Walk, 117781, Dubai, United Arab Emirates. – pablo.medina@tud.ac.ae – <https://orcid.org/0000-0002-4463-4721>

**How to cite:** Medina Aguerrebere, Pablo; Medina, Eva; González Pacanowski, Toni (2023). «La promoción de la reputación de marca hospitalaria a través de las mobile apps. Un análisis cuantitativo sobre los mejores hospitales de España», *Zer*, 28(55), 155-178. (<https://doi.org/10.1387/zer.24634>).

Received: 17 march, 2023; Accepted: 10 june, 2023.

ISSN 1137-1102 - eISSN 1989-631X / © 2023 UPV/EHU



This work is licensed under a  
 Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License

## Introduction

Hospitals resort to corporate communication to promote their brands and improve their relations with stakeholders: employees, patients, media companies, public authorities, etc. However, these organizations face several barriers: strict legal frameworks, employees' lack of skills in communication, patients' new requirements, and the difficulty to disseminate scientific content. On the other hand, hospitals need to adapt to the constantly changing external context: development of international hospital groups, implementation of new business models, integration of eHealth and artificial intelligence into the organization's medical protocols, global outbreaks, etc. In this framework, many hospitals develop their own mobile apps to fulfill their patients' needs in terms of information and emotional support. Thanks to these apps, hospitals can make their internal protocols more dynamic, promote health education initiatives, and reinforce their corporate brand.

This paper aims to analyze how hospitals manage different digital tools (websites, patient portals, social media and mobile apps) to reinforce their relationships with patients, and this way build a more credible digital brand. To do that, we conducted a literature review about hospitals' corporate communication, their branding initiatives, and the impact of mobile applications in those initiatives. Then, we carried out a quantitative analysis to evaluate how the 150 best public and private hospitals in Spain managed their mobile apps to promote their brands. To do that, we defined 36 key performance indicators and we resorted to the Spain's Most Reputed Hospitals 2022, an annual ranking published by *Merco*. Finally, we presented the main results, limitations and research avenues. Finally, we proposed three conclusions and three managerial recommendations that hospitals could consider when using mobile apps for branding purposes.

## 1. Building reputed hospital brands through mobile apps

### 1.1. CORPORATE COMMUNICATION IN HOSPITALS

Health communication comprises tactics that spread health awareness with the goal of encouraging people to follow healthy habits and be better informed about the major health risks that threaten their communities (Mheidly & Fares, 2020). To efficiently achieve these objectives, experts in health communication resort to different areas such as journalism, interpersonal communication, psychology, economics, biology, chemistry, medicine, pharmacy, and public health (Kreps, 2020). Moreover, these experts respect human values: compassion, honesty, empathy, etc. (Reza, Ansari & Mahjob, 2022). Finally, they consider patients' spiritual beliefs (Clements, Cyphers, Whittaker, Hamilton & McCarty, 2021), as well as ethical standards and legal frameworks (Merminod & Benaroyo, 2021).

According to different authors, such as Nichols, Dababnah, Berger, Long, & Sacco (2021), the most important area in health communication is doctor-patient interpersonal communication since it contributes to improve patients' medical outcomes (satisfaction, treatment adherence, and self-management). When doctors are highly skilled in interpersonal communication, they can disseminate scientific information about medicines, treatments, and diseases in a more efficient way (Tong, Krass, Robson, & Aslani, 2021), which positively affects patients' empowerment (Butow & Hoque, 2020). In other words, interpersonal communication contributes to implement shared decision-making processes among doctors and patients (Driever, Stiggelbout & Brand, 2019), which is essential to develop a more democratic hospital framework where patients' rights are always respected (Parker, Ryan, Young & Hill, 2021). For this reason, many hospitals implement training sessions whose main objective is to help doctors to improve their skills in interpersonal communication, empathy, and emotional intelligence (Driever *et al.*, 2019). Once doctors have reinforced these skills, they can help patients to improve their proficiency in this area: dialogues, questions, etc. (Steenbruggen, Van Heusden-Scholtalbers, Hoogeboom, Maas, Brand & Wees, 2021).

Experts in health communication implement different initiatives addressed to external stakeholders, such as public health authorities, media companies and patients' associations (Tan, Soneji, Choi & Moran, 2020). These initiatives are based on three main principles. *First*, promoting the hospital's brand uniqueness as an asset that impacts on stakeholders' behaviours and attitudes (Li & Zhao, 2021). *Second*, reinforcing the organization's scientific credibility in different areas: treatments, health education, etc. (Jenkins, Ilicic, Barklamb & McCaffrey, 2020). And *third*, satisfy stakeholders' needs in terms of information and social support (Rahman, Langner, & Temme, 2021).

Hospitals resort to different methods to interact with their external stakeholders: social media platforms, corporate social responsibility, etc. Thanks to social media platforms, hospitals revisit their relations with stakeholders since they can share meaningful content about treatments, research, and health education (Chou, 2021). Besides, these platforms allow hospitals to accelerate their digital transformation and become more credible institutions (Farsi, 2021). For this reason, social media are considered essential tools for hospitals interested in reinforcing their corporate reputation (Medina Aguerrebere, 2017). Concerning corporate social responsibility, hospitals develop this area to improve their relations with stakeholders: and, to efficiently do that, they prove with data that they respect employees, the environment, and the society as a whole (Correa, Palacio López, Sánchez-Torres, Arrubla-Zapata, Gaviria-Martinez, Hernández & Lopera, 2021; Zhao, Abbas, Samma, Ozkut, Munir & Rasool, 2021).

## 1.2. BRANDING IN HOSPITALS

The hospital's brand constitutes a valuable asset that includes five main elements: identity, values, mission, vision, and culture (Medina Aguerrebere, Pac-

anowski & Medina, 2020). These elements determine the hospital's communication strategies and contribute to reinforce stakeholders' perceptions about the organization's brand (Singla & Sharma, 2021; Odoom, Narteh & Odoom, 2019). Experts in health communication promote the brand from an integrative perspective: in other words, they provide stakeholders with meaningful content allowing them to better understand the organization's uniqueness (Gómez-Rico, Molina-Collado, Santos-Vijande, Molina-Collado & Imhoff, 2022). Thanks to these initiatives, hospitals establish unique relationships with stakeholders (Rindell & Santos, 2021) and develop a new paradigm where these organizations play an essential role at different levels: education, integration, protection of patients' rights, etc. (Rahman *et al.*, 2021).

Building a reputed brand is essential to reinforce the hospital's strategic positioning in the health market (Medina Aguerrebere *et al.*, 2020). However, these organizations face different challenges. *First*, finding synergies between the hospital's brand uniqueness and their stakeholders' perceptions (Li & Zhao, 2021; Reyna, 2020). *Second*, implementing personal branding campaigns that really allow patients to understand why doctors and nurses play a key role in the hospital's brand (Ren & Ma, 2021). *Third*, using visual communication tools to efficiently disseminate accurate content that helps patients understand different issues about treatments and diseases (Berg, O'Hara, Shortt, Thune, Brønnick, Lungu, Røislien Wiig, 2021). *Fourth*, managing social media, mobile apps, and artificial intelligence-based tools to make the hospital's brand more dynamic (Butow & Hoque, 2020). And *fifth*, promoting patients' rights by combatting misinformation and helping them to access quality information (Ratzan, Sommariva & Rauh, 2020).

To efficiently face these challenges and build the brand in a collective way along with stakeholders, many hospitals implement corporate communication initiatives (Lithopoulos, Evans, Faulkner & Rhodes, 2021; Sander, Föhl, Walter & Demmer, 2021). To do that, they analyze their stakeholders' perceptions about the hospital, its services, and employees (Odoom *et al.*, 2019); and based on that, they develop corporate content that satisfies their stakeholders' needs in terms of information and that contributes to reinforce the hospital's brand (Shieh, Wu, Tsai, Chang, Chang, Lui, Yao & Sheu, 2020). When implementing these branding processes, experts in health communication focus on two main targets: employees and patients. Employees need to understand the hospital's brand and promote this asset everyday through their behaviours and attitudes (Odoom *et al.*, 2019). Concerning patients, they are true opinion leaders who influence other stakeholders' perceptions about the hospital (Marca-Frances, Frigola-Reig, Menéndez-Signorini, Compte-Pujol & Massana, 2020), that is why many organizations develop online communities that provide patients with social, emotional and information support (Chen & Wang, 2021).

### 1.3. BRANDING HOSPITALS THROUGH MOBILE APPS

Mobile applications' integration with hospitals' information systems are significantly changing the way healthcare knowledge is delivered (Mateus-Coelho & Avila, 2021). These applications can be used for many clinical practices: clinical diagnosis, medical protocols, health education, etc. (Rowland, Fitzgerald, Holme, Powell & McGregor, 2020). Mobile applications add a true value when hospitals integrate them into the organization's medical protocols (Tassone, Keshavjee, Paglialonga, Moreira, Pinto & Quintana, 2020), especially when these protocols are addressed to patients who need specialized therapies (Yu, Chao, Chang, Chen, Cheng & Liu, 2021). On the other hand, mobile apps are also useful when hospitals need to interact with some targets, such as young patients or patients living in isolated places. Thanks to mobile apps, hospitals can provide young patients with accurate information in different formats: videos, graphics, and texts (Palacios-Gálvez, Andrés-Villas, Vélez-Toral & Merino-Godoy, 2021). On the other hand, hospitals can also use these apps to launch health education programs in rural communities and this way these patients: treatments, diseases, healthy habits, etc. (Yin, Lesser, Paiva, Zapata, Moreno-Vasquez, Grigsby, Ryan-Pettes, Parra-Medina, Estrada, Li, & Wang, 2020).

Mobile apps contribute to accelerate hospitals' digital transformation and reinforce patients' empowerment (Vaartio-Rajalin, Nyholm & Fagerström, 2020). Moreover, these applications positively impact hospitals' brands. Thanks to these applications, doctors, nurses, and patients establish new relationships based on mutual respect, pedagogical approaches, and respect of human rights (Navarro Martínez, Igual García & Traver Salcedo, 2021). For example, patients having limited health literacy can improve their skills through health education initiatives based on mobile apps (Crossley, Balyan, Liu, Karter, McNamara & Schillinger, 2020). On the other hand, mobile applications are also useful to educate surgical patients: information, protocols, prevention, etc. (Machado, Turrini & Sousa, 2020). In other words, thanks to mobile applications, hospitals become more performant organizations, which positively influences stakeholders' perceptions about the organization's brand (Piculell, Skär, Sanmartin, Anderberg & Bohman, 2021).

Corporate reputation is the result of organizations' behaviours (Xifra, 2020): in other words, when companies associate stakeholders' needs with corporate captivating initiatives, they become reputed organizations (Govers, 2020). More and more hospitals base their branding initiatives on mobile applications, social media, and websites (Lithopoulos *et al.*, 2021; Elrod & Fortenberry, 2020) because these technological tools directly influence stakeholders' perceptions about the organization's reputation (Trimestra, Poepelman & Arora, 2018). For this reason, hospitals need to train their employees on how to use mobile apps, social media platforms, and websites for branding purposes (Zhao *et al.*, 2021). This way, they can help them become brand ambassadors able to influence stakeholders' perceptions about the

hospital's reputation (Zhang, Yan, Wang & Chen, 2021). And this asset is especially important because thanks to reputation, hospitals can change internally and enhance their relations with stakeholders (Adebesin & Mwalugha, 2020).

## 2. Methodology

Hospitals interact with different stakeholders. They try to implement trust relationships with them, and this way improve their brand reputation. To do that, hospitals launch different initiatives. One of the most important ones consists of using mobile apps to promote health education, improve patients' medical outcomes, and reinforce the organization's brand. In order to better understand how public and private hospitals in Spain manage mobile apps for branding purposes, we analyzed the Spain's Most Reputed Hospitals 2022 (*Monitor de Reputación Sanitaria Hospitales 2022*), an annual ranking developed by *Merco*, a company that specializes in corporate business reputation analysis. To elaborate this ranking, *Merco's* researchers implemented a comprehensive methodology that included interviews to 691 patients' associations and journalists specialized in healthcare; 2.427 nurses and experts in hospital pharmacy; 2.539 doctors working in different hospital departments; and 508 hospital managers. All of them were asked to evaluate public and private hospitals according to 13 reputation values. Then, *Merco's* researchers resorted to different key performance indicators to analyze these hospitals' medical services from a quality and management perspective. Finally, based on these two inputs (interviews and quality analysis), a ranking of private and public hospitals was defined. This ranking was reviewed and validated by *KPMG's* researchers as well as by an external board integrated by experts in healthcare working in different countries (*Merco*, 2022).

This ranking identified the 100 most reputed public hospitals in Spain, as well as the 50 most reputed private hospitals in the same country (see *Appendix 1* and *Appendix 2*). To conduct our quantitative analysis, we considered these 150 hospitals' online presence (corporate website, patient portal, social media platforms), as well as their use of mobile apps for branding purposes. We focused on these 4 platforms because they are the most important ones to develop a digital brand that allows these organizations to improve their relationships with stakeholders. In fact, according to Yu *et al.*, (2021), most hospitals consider that their corporate websites remain the most important corporate communication tool: integration with traditional media, visual formats, etc. To improve their stakeholders' experiences when using these websites, many hospitals have implemented patient portals where these last ones can share medical information, interact with doctors and download medical reports (Driever *et al.*, 2019). Besides, hospitals also resort to social media platforms to satisfy patients' emotional needs: sharing personal experiences, patients support groups, etc. (Palacios-Galvez *et al.*, 2021). Finally, many hospitals also integrate mobile apps into their corporate communication initiatives since these platforms allow hospitals to

improve their internal processes (Rowland *et al.*, 2020), implement health education campaigns (Yin *et al.*, 2020) and reinforce patients' empowerment (Mateus-Coelho & Avila, 2021). In other words, we analyzed websites, patient portals, social media, and mobile apps because they are the four most important platforms that hospitals can use to build their digital brand and improve their relationships with stakeholders. Finally, concerning mobile apps, we especially focused on apps addressed to patients facing noncommunicable diseases (NDS) because, according to the World Health Organization (2022), NDSs represent 74% of all deaths globally. That is why, we focused on the two most prevalent NDSs: cancer and cardiovascular diseases.

From 9<sup>th</sup> February 2023 to 6<sup>th</sup> March 2023, we conducted a quantitative analysis on how the 150 best public and private hospitals in Spain managed mobile apps for branding purposes. In order to analyze each hospital's online presence, we defined 36 indicators that referred to four main areas: a) online integration, b) global app for patients, c) mobile apps for other targets, and d) mobile apps for patients facing noncommunicable diseases (see *Table 1*). Concerning mobile apps, we only evaluated the official ones developed by hospitals, and we mainly focused on those addressed to patients. All indicators were analyzed according to the binary system, except one indicator that was evaluated as an absolute number: online integration (*5. Number of mobile apps*).

TABLE 1  
Indicators

| Online integration        | Global app for patients        | Mobile apps for other targets          | Mobile apps for patients facing noncommunicable diseases |                                      |
|---------------------------|--------------------------------|--|--|--------------------------------------|
|                           |                                |  | Cancer   | Cardiovascular diseases              |
| 1. Corporate website      | 1. Review test results         | 1. Patients facing particular diseases | 1. Read health education information                     | 1. Read health education information |
| 2. Patient portal         | 2. Upload personal data        | 2. Employees                           | 2. Track medical metrics                                 | 2. Track medical metrics             |
| 3. Social media platforms | 3. Access family's health data | 3. Suppliers                           | 3. Contact doctors                                       | 3. Contact doctors                   |
| 4. Mobile apps            | 4. Communicate with doctors    | 4. Media companies                     | 4. Conduct online consultations                          | 4. Conduct online consultations      |
| 5. Number of mobile apps  | 5. Manage appointments         |  | 5. Request prescriptions                                 | 5. Request prescriptions             |
|                           | 6. Request prescriptions       |  | 6. Review test results                                   | 6. Review test results               |
|                           | 7. Conduct video consultations |  | 7. Upload personal data                                  | 7. Upload personal data              |
|                           | 8. Find physicians             |  | 8. Manage appointments                                   | 8. Manage appointments               |
|                           | 9. Pay bills                   |  | 9. Find physicians                                       | 9. Find physicians                   |

*Elaboration:* authors.



### 3. Results

Hospitals implement several communication initiatives to promote their brands, and this way reinforce their relationships with stakeholders, especially with employees, patients, public authorities, and media companies. In this framework, many of these organizations resort to mobile apps to disseminate corporate content about medical services, patients' experiences, and research projects. According to our results, most Spanish hospitals can still improve in this area. This is especially the case of hospitals belonging to the same group and using the same mobile apps: these practices constitute a barrier to build an unambiguous brand.<sup>1</sup> We present our results grouped in 4 main categories: 1) online integration, 2) global app for patients, 3) mobile apps for other targets, and 4) mobile apps for patients facing noncommunicable diseases.

*Online integration.* Our results proved that most Spanish public hospitals resorted to online tools to promote their brands: corporate websites (73%), patient portals (32%), social media platforms (60%) and mobile apps (16%). On average, each hospital using mobile apps had 2,8 mobile applications. On the other hand, the best public hospital by number of mobile apps was *Hospital Clinic de Barcelona*

---

<sup>1</sup> Some private hospitals belonged to the same groups and used the same apps:

- **Quiron.** Hospital Universitario Quirónsalud Madrid, Centro Médico Teknon, Hospital Quirónsalud Barcelona, Hospital Ruber Internacional, Hospital Universitari Dexeus, Hospital Quirónsalud Valencia, Hospital Quirónsalud Málaga, Complejo hospitalario Ruber Juan Bravo, Complejo hospitalario Ruber Juan Bravo, Hospital Quirónsalud Sagrado Corazón de Sevilla, Hospital La Luz — Quirónsalud, Hospital Universitari Sagrat Cor — Quirónsalud, Hospital Universitari General de Catalunya, Hospital Quirónsalud Infanta Luisa, Hospital Quirónsalud San José, Hospital Quirónsalud Toledo, Hospital Quirónsalud Sur, and Hospital Quirónsalud Marbella.
- **Sanitas.** Hospital Universitario La Zarzuela, Hospital Universitario La Moraleja, Hospital CIMA, and Hospital Virgen del Mar.
- **HLA.** Hospital HLA Universitario Moncloa, Clínica HLA Vistahermosa, Hospital HLA Jerez Puerta del Sur, Hospital HLA El Ángel, Hospital HLA Inmaculada, and Clínica HLA Montpellier.
- **Vithas.** Hospital Vithas Valencia 9 de Octubre, Hospital Vithas Sevilla, Vithas Xanit International Hospital, Vithas Madrid Arturo Soria Hospital, Hospital de Castellón Vithas, and Vithas Madrid La Milagrosa Hospital.

On the other hand, some public hospitals belonged to the same groups and used the same apps:

- **Public hospitals in the region of Valencia:** Hospital Universitari I Politecnia La Fe, Hospital Universitario Doctor Peset, Hospital de Manises, Hospital Clínico Universitario de Valencia, Consorcio Hospital General Universitario de Valencia, Hospital General Universitario de Alicante, Hospital General Universitario de Castellón, and Hospital General Universitario de Elche.



(see Table 2). Concerning private hospitals, all of them managed corporate websites and social media platforms, and most of them also used patient portals (60%) and mobile apps (76%). Similarly, each hospital having mobile apps proposed 2,97 applications on average. Lastly, the best ones according to the number of mobile apps were the hospitals belonging to *Quiron Group* (5 apps) and *Clinica Universidad de Navarra* (4 apps).

TABLE 2  
Best public hospitals by number of mobile apps

| Hospital                                      | Number of mobile apps |
|---|-----------------------|
| Hospital Clinic de Barcelona                  | 12                    |
| Hospital Universitario La Paz                 | 6                     |
| Hospital Universitario Fundación Jiménez Díaz | 5                     |
| Hospital Universitario Río Hortega            | 4                     |
| Hospital de la Santa Creu i Sant Pau          | 3                     |
| Hospital Universitari Vall d'Hebron           | 3                     |

Elaboration: authors.

*Global app for patients.* Our data proved that 81,3% of public hospitals having apps proposed a global app allowing patients to review test results (100%), upload personal health data (100%), find physicians (100%), manage appointments (100%), communicate with doctors (76,9%), request prescriptions (61,5%) and access family's health information (7,7%). However, no hospital allowed patients to use their apps to conduct video consultations with doctors or pay bills. On the other hand, and according to the number of services proposed by this global app, the best public hospitals were *Hospital Universitario Rey Juan Carlos (H.U Rey Juan Carlos App)* and the hospitals belonging to the public system in the region of Valencia (*GVA +Salut App*): both apps proposed 6 different services (see Table 3 below). Finally, 76,92% of hospitals having a global mobile app respected between 5 and 6 criteria (see Table 4). With respect to private hospitals, all organizations having mobile apps proposed a global app. Thanks to this global app, patients could review test results (100%), manage appointments (100%), find physicians (100%), upload personal data (97,4%), communicate with doctors (63,2%), pay bills (7,9%) and access family's health information (5,3%). Nevertheless, no hospital allowed patients to use their global apps to request prescriptions or conduct video consultations with doctors. On the other hand, the best hospitals by the number of services proposed in their global apps were *Clinica Universidad de Navarra* and *Clinica IMQ Virgen Blanca* (see Table 3). Finally, on average 57,8% of private hospitals having a mobile app respected between 5 and 6 criteria (see Table 4 below).

TABLE 3  
Best apps by number of services proposed to patients

| Number of services (out of 9) | Public hospitals   | Private hospitals   |
|-------------------------------|--|---|
| 7                             |  | <i>Clínica Universidad de Navarra App</i> (Clínica Universidad de Navarra)<br><i>IMQ App</i> (Clínica IMQ Virgen Blanca). |
| 6                             | <i>GVA +Salut App</i> (Hospital General Universitario de Elche, Hospital General Universitario de Castellón, Hospital General Universitario de Alicante, Consorcio Hospital General Universitario de Valencia, Hospital Clínico Universitario de Valencia, Hospital de Manises, Hospital Universitario Doctor Peset, Hospital Universitari I Politecnic La Fe).<br><i>H.U Rey Juan Carlos App</i> (Hospital Universitario Rey Juan Carlos, Móstoles) | <i>Clínica Centro App</i> (Clínica Centro)  |
| 5                             | <i>Fundación Jiménez Díaz App</i> (Hospital Universitario Fundación Jiménez Díaz)  | <i>QuironSalud App</i> (Quiron Group)<br><i>Mi Sanitas App</i> (Sanitas Group)  |

Elaboration: authors.

TABLE 4  
Hospitals and Criteria

| Number of criteria | Public hospitals | Private hospitals |
|--------------------|------------------|-------------------|
| 9                  | 0                | 0                 |
| 8                  | 0                | 0                 |
| 7                  | 0                | 2                 |
| 6                  | 9                | 1                 |
| 5                  | 1                | 21                |
| 4                  | 3                | 13                |
| 3                  | 0                | 1                 |
| 2                  | 0                | 0                 |
| 1                  | 0                | 0                 |
| 0                  | 87               | 12                |
| Total              | 100              | 50                |

Elaboration: authors.

*Mobile apps for other targets.* Most public hospitals proposed apps for their employees (62,5%) as well as for patients facing particular diseases (56,3%). However, none of them had an app for suppliers or for media companies. The only hospitals proposing apps for at least two targets were *Hospital Universitario La Paz*, *Hospital Clinic de Barcelona*, *Hospital Universitario 12 de Octubre*, *Hospital Universitari Vall d'Hebron*, *Hospital Universitario Fundación Jiménez Díaz* and *Hospital de la Santa Creu i Sant Pau*. With respect to private hospitals, 47,4% of them proposed apps for employees, and 2,6% for patients facing particular diseases. Similarly, no private hospital showcased apps for suppliers or media companies. Finally, the only hospital proposing at least one app for two different targets was *Clinica Universidad de Navarra*.

*Mobile apps for patients facing noncommunicable diseases.* According to our results, no public hospital having mobile apps proposed at least one app for patients facing cancer, and only one hospital had an app for patients suffering from cardiovascular diseases: *Hospital Clinic de Barcelona* showcased its *Avanza T App*. Thanks to this app, patients could access health education information, track different metrics, contact doctors, review test results, upload personal health data, manage appointments, and find physicians. On the other hand, no private hospital had mobile apps for patients suffering from cancer or heart diseases.

#### 4. Discussion

Hospitals resort to websites and patient portals to make their health education and branding initiatives more dynamic, and this way improve shared decision-making processes between doctors and patients (Adapa, Jain, Kanwar, Zaman, Taneja, Walker & Mazur, 2020). Besides, some of these organizations manage social media platforms (Stellefson, Paige, Chaney & Chaney, 2020) and mobile apps (Meinert, Rahman, Potter, Lawrence & Van Velthoven, 2020) to satisfy their patients' needs in terms of information and emotional support, which positively affects the hospital's brand (Lithopoulos *et al.*, 2021). Our results proved that most public and private hospitals in Spain managed websites and social media platforms for branding purposes; however, only 16% of public hospitals proposed mobile apps. Moreover, 40% of private hospitals did not manage patient portals. In other words, most public and private hospitals in Spain resorted to different online communication tools to promote their brands (websites, social media platforms), but they did not invest enough in other online tools that are also important for patients, such as mobile apps and patient portals.

In many hospitals, patients' empowerment is not sufficiently clearly defined at each level of the care production chain (Tilkin, De Winter, Ketterer, Etienne, Vanmeerbeek & Schoenaers, 2019), which constitutes a problem because patients cannot share their opinions and make informed decisions (Navarro, 2020). These organiza-

tions need to implement practical initiatives to reinforce patients' empowerment at every level of hospital care (Simonsmeier, Flaig, Simacek & Schneider, 2021). Besides, they must help doctors and nurses to change their mentalities, behaviours and attitudes concerning this topic (Affinito, Fontanella, Montano & Brucato, 2022). However, our results demonstrated that many hospitals did not use global mobile apps to propose the services that patients needed to reinforce their empowerment. Even if most public and private hospitals having mobile apps proposed a global app for patients (81,3% and 100% respectively), no organization allowed patients to use these apps to conduct video consultations with doctors, which is basic service that allows patients to ask questions, resolve doubts and reinforce their empowerment. In other words, most hospitals resorted to global mobile apps to enhance some administrative services (find physicians, manage appointments, etc.), but not to establish a new communication paradigm allowing patients to reinforce their empowerment and make informed decisions.

Hospitals need to prioritize patients facing noncommunicable diseases, such as cancer and heart diseases. Cancer patients' activation is directly associated with health education (Tuominen, Ritmala-Castrén, Nikander, Mäkelä, Vahlberg & Leino-Kilpi, 2021), that is why doctors and nurses should be trained on how to educate these patients and their relatives (Lavdaniti, 2020). On the other hand, patients suffering from heart diseases need to interact frequently with their doctors (Świątoniowska-Lonc, Sławuta, Dudek, Jankowska & Jankowska-Polańska, 2020) and establish a transparent dialogue with them: diseases, treatments, healthy habits, (Mentrup, Harris, Gomersall, Köpke, Astin, 2020). Nevertheless, our analysis proved that no private hospital in Spain proposed an app for patients suffering from cancer or heart diseases. Concerning public hospitals, no one had apps for cancer patients, and only one proposed an app for patients suffering from heart diseases (*Hospital Clinic de Barcelona*). These facts demonstrated that most private and public hospitals in Spain did not invest enough in online communication to efficiently accompany these patients, which constitutes a risk from a public health perspective because these patients need to interact constantly with doctors to improve their medical outcomes. Besides, it also constitutes a reputation risk because it means that these hospitals do not use their communication resources to help patients facing diseases that radically transform their lives from a medical, social, and emotional perspective.

This paper contributed to better understand how hospitals managed mobile apps for branding purposes. However, we must highlight three limitations affecting this research. First, we did not have access to every hospital's corporate communication plan, which avoided us to understand how they integrated mobile apps into the organization's branding initiatives. Second, we did not find any information related to stakeholders' perceptions about mobile apps, which made it difficult for us to understand whether these applications are really useful to influence stakeholders' perceptions about the hospital's brand. And third, we did not retrieve any other pa-

per analyzing the same topic in Spain, that is why we could not compare our results. Despite these limitations, we consider that this paper is useful for experts in health communication working in hospitals, as well as for academicians conducting research about this area. Concerning these last ones, we recommend them to focus on three key areas for the next years. First, the development of training sessions to help doctors and nurses to use mobile apps for branding purposes; second, the integration of these applications into the hospital's medical protocols; and third, the use of artificial intelligence, big data, and deep learning to make mobile apps more flexible and this way satisfy patients' information and emotional needs.

## 5. Conclusion

Managing mobile apps for branding purposes constitutes a challenge for many hospitals. To efficiently achieve this objective, these organizations consider their own priorities, but also their patients' needs in terms of information and emotional support, as well as other external factors such as public health emergencies, legal frameworks and ethical standards. This paper aimed to analyze how hospitals manage different digital tools (websites, patient portals, social media and mobile apps) to reinforce their relationships with patients, and this way build a more credible digital brand. After analyzing how the Spain's best hospitals managed these four platforms for branding purposes, we concluded this paper with three main ideas. First, most Spanish hospitals did not use mobile apps for building a more dynamic brand and this way improve their emotional relations with patients (storytelling, social support, online communities, etc). In fact, these hospitals used mobile apps to improve some administrative processes (manage appointments, request prescriptions, find physicians, etc.), but not for implementing communication initiatives allowing them to build their brand in a collective way along with their stakeholders. Second, most hospitals did not develop a brand content strategy that focused on disseminating content that is really important for patients: health education, patients' rights, hospitals' legacy, etc. Rather than that, these hospitals only disseminated basic information about their activities: events, conferences, etc. For example, only 1 hospital out of 150 proposed an app for patients facing cancer or heart diseases, which constitutes a brand mistake, as well as a public health risk since hospitals are supposed to educate patients and accompany them in their journey. And third, according to our results, no hospital proposed a mobile app for media companies, which proves, on the one hand, that most Spanish hospitals do not really know how to collaborate with media companies to improve their scientific credibility; and, on the other hand, that hospitals' branding strategies do not follow a social approach that prioritizes health education, protection of patients' rights, and promotion of public health.

Based on our qualitative and quantitative results, and considering these three conclusions, we recommend Spanish hospitals to forget about their basic commu-

nication approach focused on using mobile apps as an administration tool. Instead, they should follow a true branding perspective that prioritizes stakeholders' information and emotional needs; otherwise, they will never be able to build a unique brand. To do that, hospitals need to implement an Online Communication Unit where experts in public health, medicine, branding and artificial intelligence conduct state-of-the-art research to develop mobile apps that fulfil the hospital's and its stakeholders' needs from a branding and public health perspective. This Online Communication Unit should implement training sessions addressed to doctors and nurses to help them change their mentalities about these tools, and this way accelerate the hospital's digital transformation.

## Specific contribution and author's order

The three undersigned professors confirm that we are the authors of the article «Promoting Hospitals' Brand Reputation through Mobile Apps. A Quantitative Analysis about the Best Hospitals in Spain». This is an original article that respects all the ethical requirements of scientific research, and with which we have no conflict of interest.

To carry out this research, we have distributed the work as follows. Pablo Medina was in charge of the overall structure of the article, designing the fieldwork and writing the literature review, as well as the introduction and conclusion. Eva Medina carried out the methodological analysis and wrote the methodology and results. Toni Gonzalez has written the discussion, and has collaborated with the fieldwork. Finally, the three of us have reviewed the document (expression, spelling, coherence, etc.).

The order of signature responds to the fact that the original idea of this article is Pablo Medina's; and that Eva Medina has assumed more of the work than Toni Gonzalez in their respective missions.

## References

- Adapa, Karthik; Jain, Saumya; Kanwar, Richa; Zaman, Tanzila; Taneja, Trusha; Walker, Jennifer; Mazur, Lusz (2020). Augmented reality in patient education and health literacy: a scoping review protocol. *BMJ Open*, 10, e038416. Doi: <https://doi.org/10.1136/bmjopen-2020-03841>
- Adebesin, Funmi; Mwalugha, Revingston (2020). The mediating role of organizational reputation and trust in the intention to use wearable health devices: cross-country study. *JMIR Mhealth and Uhealth*, 8(6), e16721. Doi: <https://doi.org/10.2196/16721>
- Affinito, Letizia; Fontanella, Andrea; Montano, Nicola; Brucato, Antonio (2022). How physicians can empower patients with digital tools: A joint study of the Italian Scientific Society of Internal Medicine (FADOI) and the European Federation of Internal Medi-

- cine (EFIM). *Journal of Public Health*, 30 (3). Doi: <https://doi.org/10.1007/s10389-020-01370-4>
- Berg, Siv; O'Hara, Jane; Shortt, Marie; Thune, Henriette; Brønnick, Kallesten; Lungu, Daniel; Røislien Jo; Wiig, Siri (2021). Health authorities' health risk communication with the public during pandemics: a rapid scoping review. *BMC Public Health*, 21(1), 1401. Doi: <https://doi.org/10.1186/s12889-021-11468-3>
- Butow, Phyllis; Hoque, Ehsan (2020). Using artificial intelligence to analyse and teach communication in healthcare. *Breast*, 50, 49-55. Doi: <https://doi.org/10.1016/j.breast.2020.01.008>
- Chen, Junhan; Wang, Yuhan (2021). Social media use for health purposes: systematic review. *Journal of Medical Internet Research*, 23(5), e17917. Doi: <https://doi.org/10.2196/17917>
- Chou, Weng (2021). Using content analysis to inform health communication efforts on social media: Is popularity the goal? *Mhealth*, 7, 40. Doi: <https://doi.org/10.21037/mhealth-2020-1>
- Clements, Andrea; Cyphers, Natalie; Whittaker, Deborah; Hamilton, Bridget; McCarty, Brett (2021). Using trauma informed principles in health communication: improving faith/science/clinical collaboration to address addiction. *Frontiers in Psychology*, 12, 781484. Doi: <https://doi.org/10.3389/fpsyg.2021.781484>
- Correa, Erika; Palacio López, Sandra; Sánchez-Torres, Javier; Arrubla-Zapata, Juan; Gaviria-Martinez, Luisa; Hernández, Yuri; Lopera, Carolina (2021). Effectiveness of social responsibility marketing in young millennials . Generation Y: analysis of three cases for brand positioning. *Heliyon*, 7 (10), 1-8. Doi: <https://doi.org/10.1016/j.heliyon.2021.e08150>
- Crossley, Scott; Balyan, Renu; Liu, Jennifer; Karter, Andrew; McNamara, Danielle; Schilling, Dean (2020). Predicting the readability of physicians' secure messages to improve health communication using novel linguistic features: Findings from the ECLIPSE study. *Journal of Community Health*, 13(4), 1-13. Doi: <https://doi.org/10.1080/17538068.2020.1822726>
- Driever, Ellen; Stigebout, Anne; Brand, Paul (2019). Shared decision making: Physicians' preferred role, usual role and their perception of its key components. *Patient Education and Counseling*, 103 (1), 77-82. Doi: <https://doi.org/10.1016/j.pec.2019.08.004>
- Elrod, James; Fortenberry, John (2020). Foundational elements of communication in health and medicine: avenues for strengthening the marketing communications mix. *BMC Health Services Research*, 20, 823. Doi: <https://doi.org/10.1186/s12913-020-05604-9>
- Farsi, Deema (2021). Social media and health care, Part I: literature review of social media use by health care providers. *Journal of Medical Internet Research*, 23(4), e23205. Doi: <https://doi.org/10.2196/23205>
- Gómez-Rico, Mar; Molina-Collado, Arturo; Santos-Vijande, Maria; Molina-Collado, Maria; Imhoff, Brian (2022). The role of novel instruments of brand communication and brand image in building consumers' brand preference and intention to visit wineries. *Current Psychology*, 7, 1-17. Doi: <https://doi.org/10.1007/s12144-021-02656-w>
- Govers, Robert (2020). Imaginative communities and place branding. *Place Branding and Public Diplomacy*, 16 (1), 1-5. Doi: <https://doi.org/10.1057/s41254-019-00143-5>



- Jenkins, Eva; Ilicic, Jasmina; Barklamb, Amy; McCaffrey, Tracy (2020). Assessing the credibility and authenticity of social media content. Lessons and applications for health communication: a scoping review of the literature. *Journal of Medical Internet Research*, 22(7), e17296. Doi: <https://doi.org/10.2196/17296>
- Kreps, Gary (2020). The value of health communication scholarship: New directions for health communication inquiry. *International Journal of Nursing Sciences*, 10 (7), 4-7. Doi: <https://doi.org/10.1016/j.ijnss.2020.04.007>
- Lavdaniti, Maria (2020). Contemporary issues in cancer patients' education. *International Journal of Caring Sciences*, 13 (1), 1-3.
- Li, Yalin; Zhao, Min (2021). Underdog or top dog brand story? The role of self-construal and need of uniqueness. *Frontiers in Psychology*, 12, 765802. Doi: <https://doi.org/10.3389/fpsyg.2021.765802>
- Lithopoulos, Alexander; Evans, Douglas; Faulkner, Guy; Rhodes, Ryan (2021). Marketing physical activity? Exploring the role of brand resonance in health promotion. *Journal of Health Communication*, 26(10), 675-683. Doi: <https://doi.org/10.1080/10810730.2021.1989524>
- Machado, Rafaela; Turrini, Ruth; Sousa, Cristina (2020). Mobile applications in surgical patient health education: an integrative review. *Revista da Escola de Enfermagem da USP*, 54, e03555. Doi: <http://dx.doi.org/10.1590/S1980-220X2018032803555>
- Marca-Frances, Guillem; Frigola-Reig, Joan; Menéndez-Signorini, Jessica; Compte-Pujol, Marc; Massana-Morera, Eulalia (2020). Defining patient communication needs during hospitalization to improve patient experience and health literacy. *BMC Health Services Research*, 20(1), 131. Doi: <https://doi.org/10.1186/s12913-020-4991-3>
- Mateus-Coelho, Nuno; Avila, Paulo (2021). Application of the industry 4.0 technologies to mobile learning and health education apps. *FME Transactions*, 49 (4), 877. Doi: <https://doi.org/10.5937/fme2104876M>
- Medina Aguerrebere, Pablo (2017). La gestión de la reputación online de las marcas hospitalarias: una propuesta de modelo. *ZER: Revista De Estudios De Comunicación = Komunikazio Ikasketen Aldizkaria*, 22(43), 53-68. Doi: <https://doi.org/10.1387/zer.17908>
- Medina Aguerrebere, Pablo; Pacanowski, Toni; Medina, Eva (2020). Stakeholders' participation in hospitals' branding initiatives on social media: a proposal model for building collective brands. *Revista Española de Comunicación en Salud*, 11 (1). Doi: <https://doi.org/10.20318/recs.2020.5097>
- Meinert, Edward; Rahman, Em; Potter, Alison; Lawrence, Wendy; Van Velthoven, Michelle (2020). Acceptability and usability of the mobile digital health app NoObesity for families and health care professionals: protocol for a feasibility study. *JMIR Research Protocols*, 9(7), e18068. Doi: <https://doi.org/10.2196/18068>
- Mentrup, Stefanie; Harris, Emma; Gomersall, Tim; Köpke, Sascha; Astin, Felicity (2020). Patients' experiences of cardiovascular health education and risk communication: a qualitative synthesis. *Qualitative Health Research*, 30 (1), 88-104. Doi: <https://doi.org/10.1177/1049732319887949>
- Merco (2022). *Monitor de Reputación Sanitaria Hospitales - Merco*. Retrieved from: <https://www.merco.info/es/monitor-reputacion-sanitaria-hospitales> (February 13, 2023)
- Merminod, Gilles; Benaroyo, Lazare (2021). Ethical issues in public health communication: Practical suggestions from a qualitative study on campaigns about organ donation in

- Switzerland. *Patient Education and Counseling*, S0738-3991(21)00471-7. Doi: <https://doi.org/10.1016/j.pec.2021.07.012>
- Mheidly, Nour; Fares, Jawad (2020). Health communication in low-income countries: A 60-year bibliometric and thematic analysis. *Journal of Education and Health Promotion*, 9, 163. Doi: [https://doi.org/10.4103/jehp.jehp\\_384\\_20](https://doi.org/10.4103/jehp.jehp_384_20)
- Navarro, Maria (2020). Patients' empowerment and the role of patients' education. *Medical Research Archives*, 8 (12). Doi: <https://doi.org/10.18103/mra.v8i12.2306>
- Navarro Martínez, Olga; Igual García, Jorge; Traver Salcedo, Vicente (2021). Estimating patient empowerment and nurses' use of digital strategies: eSurvey study. *International Journal of Environmental Research and Public Health*, 18(18), 9844. Doi: <https://doi.org/10.3390/ijerph18189844>
- Nichols, Helen; Dababnah, Sarah; Berger, Zackary; Long, Caroline; Sacco, Paul (2021). Can you hear me now? Effects of patient-centered communication with young adults aged 26 to 39. *Journal of Patient Experience*, 8, 23743735211033116. Doi: <https://doi.org/10.1177/23743735211033116>
- Odoom, Priscilla; Narteh, Bedman; Odoom, Raphael (2019). Healthcare branding: Insights from Africa into health service customers' repeat patronage intentions. *International Journal of Healthcare Management*, 14 (1), 1-13. Doi: <https://doi.org/10.1080/20479700.2019.1688503>
- Palacios-Gálvez, Soledad; Andrés-Villas, Montserrat; Vélez-Toral, Mercedes; Merino-Godoy, Ángeles (2021). Nominal groups to develop a mobile application on healthy habits. *Healthcare*, 9, 378. Doi: <https://doi.org/10.3390/healthcare9040378>
- Parker, Lisa; Ryan, Rebecca; Young, Suellen; Hill, Sophie (2021). Medications and doctor-patient communication. *Australian Journal of General Practice*, 50(10), 709-714. Doi: <https://doi.org/10.31128/AJGP-05-21-5973>
- Piculell, Erik; Skär, Lisa; Sanmartin, Johan; Anderberg, Peter; Bohman, Doris (2021). Using a mobile application for health communication to facilitate a sense of coherence: experiences of older persons with cognitive impairment. *International Journal of Environmental Research and Public Health*, 18(21),11332. Doi: <https://doi.org/10.3390/ijerph182111332>
- Rahman, Renée; Langner, Tobias; Temme, Dirk (2021). Brand love: conceptual and empirical investigation of a holistic causal model. *Journal of Brand Management*, 28 (1), 609-642. Doi: <https://doi.org/10.1057/s41262-021-00237-7>
- Ratzan, Scott; Sommariva, Silvia; Rauh, Lauren (2020) Enhancing global health communication during a crisis: lessons from the COVID-19 pandemic. *Public Health Research and Practice*, 30(2), 3022010. Doi: <https://doi.org/10.17061/phrp3022010>
- Ren, Dixuan; Ma, Baolong (2021). Effectiveness of interactive tools in online health care communities: social exchange theory perspective. *Journal of Medical Internet Research*, 23(3), e21892. Doi: <https://doi.org/10.2196/21892>
- Reyna, Valerie (2020). A scientific theory of gist communication and misinformation resistance, with implications for health, education, and policy. *Proceedings of the National Academy of Sciences*, 118 (15), 201912441. Doi: <https://doi.org/10.1073/pnas.1912441117>
- Reza, Shafiee; Ansari, Fahimeh; Mahjob, Hossein (2022). Physicians' brand personality: building brand personality scale. *Services Marketing Quarterly*, 43 (1), 48-66. Doi: <https://doi.org/10.1080/15332969.2021.1989890>

- Rindell, Anne; Santos, Fernando (2021). What makes a corporate heritage brand authentic for consumers? A semiotic approach. *Journal of Brand Management*, 28, 545-558. Doi: <https://doi.org/10.1057/s41262-021-00243-9>
- Rowland, Simon; Fitzgerald, Edward; Holme, Thomas; Powell, John; McGregor, Alison (2020). What is the clinical value of mHealth for patients? *NPJ Digital Medicine*, 3 (4). Doi: <https://doi.org/10.1038/s41746-019-0206-x>
- Sander, Frauke; Föhl, Ulrich; Walter, Nadine; Demmer, Vera (2021). Green or social? An analysis of environmental and social sustainability advertising and its impact on brand personality, credibility and attitude. *Journal of Brand Management*, 28, 429-445. Doi: <https://doi.org/10.1057/s41262-021-00236-8>
- Shieh, Gow; Wu, Shi; Tsai, Che; Chang, Chi; Chang, Tsung; Lui, Ping; Yao, Yuh; Sheu, Wayne (2020). A strategic imperative for promoting hospital branding: analysis of outcome indicators. *Interactive Journal of Medical Research*, 9(1), e14546. Doi: <https://doi.org/10.2196/14546>
- Simonsmeier, Bianca; Flaig, Maja; Simacek, Thomas; Schneider, Michael (2021). What sixty years of research says about the effectiveness of patient education on health: a second order meta-analysis. *Health Psychology Review*, 24, 1-25. Doi: <https://doi.org/10.1080/17437199.2021.1967184>
- Singla, Vikas; Sharma, Nidhi (2021). Understanding role of fonts in linking brand identity to brand perception. *Corporate Reputation Review*, 25, 272-286. Doi: <https://doi.org/10.1057/s41299-021-00127-3>
- Steenbruggen, Rudy; Van Heusden-Scholtalbers, Linda; Hoogeboom, Thomas; Maas, Marjo; Brand, Paul; Wees, Philip (2021). Impact and feasibility of a tailor-made patient communication quality improvement programme for hospital-based physiotherapists: a mixed-methods study. *BMJ Open Quality*, 10(2), e001286. Doi: <https://doi.org/10.1136/bmjopen-2020-001286>
- Stellefson, Michael; Paige, Samantha; Chaney, Beth; Chaney, Don (2020). Evolving role of social media in health promotion: updated responsibilities for health education specialists. *International Journal of Environmental Research and Public Health*, 17(4), 1153. Doi: <https://doi.org/10.3390/ijerph17041153>
- Świątoniowska-Lonc, Natalia; Sławuta, Agnieszka; Dudek, Krystof; Jankowska, Katarzyna; Jankowska-Polańska, Beata (2020). The impact of health education on treatment outcomes in heart failure patients. *Advances in Clinical and Experimental Medicine*, 29(4), 481-492. Doi: <https://doi.org/10.17219/acem/115079>
- Tan, Andy; Soneji, Samir; Choi, Kelvin; Moran, Meghan (2020). Prevalence of using pod-based vaping devices by brand among youth and young adults. *Tobacco Control*, 29(4), 461-463. Doi: <https://doi.org/10.1136/tobaccocontrol-2019-055064>
- Tassone, Cristina; Keshavjee, Karim; Paglialonga, Alessia; Moreira, Nimia; Pinto, Jennifer; Quintana, Yuri (2020). Evaluation of mobile apps for treatment of patients at risk of developing gestational diabetes. *Health Informatics Journal*, 26 (2), 146045821989663. Doi: <https://doi.org/10.1177/1460458219896639>
- Tilkin, Caroline; De Winter, Melanie; Ketterer, Frederic; Etienne, Anne; Vanmeerbeek, Marc; Schoenaers, Frederic (2019). Considering patients' empowerment in chronic care management: a cross-level approach. *European Journal of Investigation in Health*,

- Psychology and Education*, 10(1), 134-142. Doi: <https://doi.org/10.3390/ejihpe10010012>
- Tong, Vivien; Krass, Ines; Robson, Stephen; Aslani, Parissa (2021). Opt-in or opt-out health-care communication? A cross-sectional study. *Health Expectations*, 24(3), 776-789. Doi: <https://doi.org/10.1111/hex.13198>
- Triemstra, Justin; Poepelman, Rachel; Arora, Vineet (2018). Correlations between hospitals' social media presence and reputation score and ranking: cross-sectional analysis. *Journal of Medical Internet Research*, 20(11), e289. Doi: <https://doi.org/10.2196/jmir.9713>
- Tuominen, Leena; Ritmala-Castrén, Marita; Nikander, Pia; Mäkelä, Sir; Vahlberg, Tero; Leino-Kilpi, Helena (2021). Empowering patient education on self-care activity among patients with colorectal cancer - a research protocol for a randomised trial. *BMC Nursing*, 20, 94. Doi: <https://doi.org/10.1186/s12912-021-00617-z>
- Vaartio-Rajalin, Heli; Nyholm, Linda; Fagerström, Lisbeth (2020). Patient education in the hospital-at-home care context. *Patient Experience Journal*, 7 (1), 65-74. Doi: <https://doi.org/10.35680/2372-0247.1408>
- Xifra, Jordi (2020). Comunicación corporativa, relaciones públicas y gestión del riesgo reputacional en tiempos del Covid-19. *El Profesional de la Información*, 29 (2), e290220. Doi: <https://doi.org/10.3145/epi.2020.mar.20>
- Yin, Zenong; Lesser, Janna; Paiva, Kristi; Zapata, Jose; Moreno-Vasquez, Andrea; Grigsby, Timothy; Ryan-Pettes, Stacy; Parra-Medina, Deborah; Estrada, Vanessa; Li, Shiyu; Wang, Jing (2020). Using mobile health tools to engage rural underserved individuals in a diabetes education program in South Texas: feasibility study. *JMIR Mhealth and Uhealth*, 8(3), e16683. Doi: <https://doi.org/10.2196/16683>
- Yu, Chen; Chao, Cheng; Chang, Che; Chen, Rueg; Cheng, Po; Liu, Yi (2021). Exploring behavioral intention to use a mobile health education website: an extension of the UTAUT 2 Model. *Sage Open*, 11 (4). Doi: <https://doi.org/10.1177/21582440211055721>
- Zhang, Tingting; Yan, Xiangbin; Wang, William; Chen, Qin (2021). Unveiling physicians' personal branding strategies in online healthcare service platforms. *Technological Forecasting and Social Change*, 171 (3), 120964. Doi: <https://doi.org/10.1016/j.techfore.2021.120964>
- Zhao, Yan; Abbas, Manzir; Samma, Madeeha; Ozkut, Tarik; Munir, Mubbasher; Rasool, Samma (2021). Exploring the relationship between corporate social responsibility, trust, corporate reputation, and brand equity. *Frontiers in Psychology*, 12, 766422. Doi: <https://doi.org/10.3389/fpsyg.2021.766422>
- World Health Organization (2022). *Noncommunicable diseases*. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases> (January 6, 2023)

## Appendix

### APPENDIX I. SPAIN'S MOST REPUTED PUBLIC HOSPITALS (2022)

1. Hospital Universitario La Paz
2. Hospital Clinic de Barcelona
3. Hospital General Universitario Gregorio Marañón

4. Hospital Universitario 12 de Octubre
5. Hospital Universitari Vall d'Hebron
6. Hospital Universitari I Politecnic La Fe
7. Hospital Universitario Ramón y Cajal
8. Hospital Universitario Virgen del Rocío
9. Hospital Universitario Fundación Jiménez Díaz
10. Hospital Clínico San Carlos
11. Hospital Universitario Puerta de Hierro Majadahonda
12. Hospital Universitario Reina Sofía
13. Hospital Universitario Virgen Macarena
14. Hospital Universitario Marqués de Valdecilla
15. Hospital Universitario de A Coruña
16. Hospital de la Santa Creu i Sant Pau
17. Hospital Universitario Central de Asturias
18. Hospital Clínico Universitario Virgen de la Arrixaca
19. Hospital Universitario Clínico San Cecilio
20. Hospital Universitario Doctor Peset
21. Hospital Universitario Virgen de la Victoria
22. Complejo Asistencial Universitario de Salamanca
23. Hospital Universitari de Bellvitge
24. Hospital de Manises
25. Hospital Universitario Regional de Málaga
26. Hospital Universitario Río Hortega
27. Hospital de Galdakao-Usansolo
28. Hospital Universitario Rey Juan Carlos
29. Hospital Universitario Virgen de las Nieves
30. Hospital del Mar
31. Hospital Universitario Puerto Real
32. Complejo Hospitalario Torrecárdenas
33. Hospital Universitario de Fuenlabrada
34. Hospital General Universitario Reina Sofia
35. Hospital Universitario de Cruces
36. Hospital Universitario Fundación Alcorcón
37. Hospital General Universitario Morales Meseguer
38. Hospital Universitario Severo Ochoa
39. Hospital General Universitario de Ciudad Real

40. Complejo Hospitalario Universitario de Cartagena
41. Complejo Hospitalario de Jaén
42. Hospital Universitario General de Villalba
43. Hospital Clínico Universitario de Valladolid
44. Complejo Hospitalario Universitario de Lugo
45. Complejo Hospitalario Universitario de Albacete
46. Hospital Universitario Infanta Leonor
47. Hospital Universitario de Cabueñes
48. Hospital Universitario Nuestra Señora de Candelaria
49. Hospital Universitario de La Princesa
50. Hospital General La Mancha Centro
51. Hospital Universitario de Basurto
52. Hospital Universitario de Gran Canaria Doctor Negrín
53. Hospital Universitario Virgen de Valme
54. Complejo Hospitalario Universitario de Santiago
55. Hospital Universitario Príncipe de Asturias
56. Hospital Clínico Universitario de Valencia
57. Hospital Germans Trias i Pujol
58. Hospital Universitario Miguel Servet
59. Hospital Universitario Infanta Sofía
60. Hospital Universitario Arnau de Vilanova
61. Consorcio Hospital General Universitario de Valencia
62. Hospital Universitario Araba
63. Complejo Hospitalario de Navarra
64. Hospital General Universitario de Alicante
65. Hospital Clínico Universitario Lozano Blesa
66. Complejo Hospitalario del Área de Salud de Mérida
67. Hospital Costa del Sol
68. Hospital Universitario de Donostia
69. Hospital Universitario de Jerez de la Frontera
70. Hospital Universitari Son Espases
71. Complejo Hospitalario Universitario de Vigo
72. Hospital Universitario Puerta del Mar
73. Hospital Universitario de Canarias
74. Hospital Comarcal La Merced
75. Complejo Asistencial Universitario de León

76. Hospital Universitario de Getafe
77. Complejo Hospitalario de Toledo
78. Complejo Hospitalario Universitario de Badajoz
79. Hospital Universitario de Cáceres
80. Complejo Hospitalario San Millán San Pedro
81. Hospital de Sabadell
82. Hospital Juan Ramón Jiménez
83. Hospital Universitario Dr. Josep Trueta
84. Hospital Universitari Mutua Terrassa
85. Complejo Hospitalario Universitario de Pontevedra
86. Hospital General Universitario de Castellón
87. Hospital Universitari Sant Joan de Reus
88. Hospital General Universitario de Elche
89. Hospital Universitario de Guadalajara
90. Complejo Asistencial Universitario de Burgos
91. Hospital Universitario Arnau de Vilanova
92. Hospital Universitario de Torrejón
93. Hospital San Pedro de Alcántara
94. Hospital Virgen de la Luz de Cuenca
95. Hospital Universitario de Móstoles
96. Hospital Universitario Son Llàtzer
97. Complejo Hospitalario Universitario Insular — Materno Infantil
98. Complejo Hospitalario Universitario de Ourense
99. Hospital Virgen del Puerto
100. Hospital Rafael Méndez

## APPENDIX 2. SPAIN'S MOST REPUTED PRIVATE HOSPITALS (2022)

1. Clínica Universidad de Navarra
2. Hospital Universitario Quirónsalud Madrid
3. Hospital Universitario HM Sanchinarro
4. Hospital Universitario La Zarzuela
5. Centro Médico Teknon
6. Hospital Universitario La Moraleja
7. Hospital Quirónsalud Barcelona
8. Hospital HM Montepríncipe



9. Hospital Ruber Internacional
10. Hospital Universitari Dexeus
11. Hospital Quirónsalud Valencia
12. Hospital HLA Universitario Moncloa
13. Hospital CIMA
14. Hospital Virgen del Mar
15. Hospital Quirónsalud Málaga
16. Complejo Hospitalario Ruber Juan Bravo
17. Hospital Quirónsalud Sagrado Corazón de Sevilla
18. Hospital La Luz - Quirónsalud
19. Hospital Universitari Sagrat Cor - Quirónsalud
20. Hospital Universitari General de Catalunya
21. Hospital Vithas Valencia 9 de Octubre
22. Hospital Quirónsalud Infanta Luisa
23. Hospital Vithas Sevilla
24. Hospital Universitario HM Puerta del Sur
25. Clínica HLA Vistahermosa
26. HM Hospital Universitario en Madrid
27. Hospital HLA Jerez Puerta del Sur
28. Hospital HLA El Ángel
29. Hospital Quirónsalud San José
30. Hospital Quirónsalud Toledo
31. Vithas Xanit International Hospital
32. Hospital Quirónsalud Sur
33. Hospital HM Rosaleda
34. Vithas Madrid Arturo Soria Hospital
35. Hospital HLA Inmaculada
36. Hospitales Universitarios San Roque
37. HM Nou Delfos
38. Vithas Madrid La Milagrosa Hospital
39. Hospital HM Torrelodones
40. Hospital Quirónsalud Marbella
41. Clínica HLA Montpellier
42. Hospital de Castellón Vithas
43. Policlínica Barcelona
44. Clínica Cemtro

45. Hospital Povisa Vigo
46. Hospital San Rafael
47. Hospital Universitario San Francisco de Asís
48. Hospital Viamed Santa Ángela de la Cruz
49. Clínica IMQ Virgen Blanca
50. Hospital Nuestra Señora del Rosario