

Lorena Busto-Salinas

<https://orcid.org/0000-0003-0768-8349>

lbusto@ubu.es

Universidad de Burgos

Submitted

September 24th, 2019

Approved

July 29th, 2020

© 2021

Communication & Society

ISSN 0214-0039

E ISSN 2386-7876

doi: 10.15581/003.34.1.93-108

www.communication-society.com

2021 – Vol. 34(1)

pp. 93-108

How to cite this article:

Busto-Salinas, L. (2021). Will better performing health-care services have higher profiles and be more active on social media? A comparative study between hospitals from Colombia and Spain. *Communication & Society*, 34(1), 93-108.

Will better performing health-care services have higher profiles and be more active on social media? A comparative study between hospitals from Colombia and Spain

Abstract

Hospitals make increasingly more use of social media. The basic hypothesis of this study is that the more developed the health care services of a country are, the higher the communicative activity of its hospitals will be on social media. Moreover, the highest presence and activity on social media will be associated with the most prestigious hospitals in countries with fewer economic resources. The presence of the most prestigious hospitals in both Colombia and Spain on Facebook, Twitter, YouTube and Instagram are analyzed in this paper to either refute or to accept these hypotheses. Both countries have similar populations, but their economic and health care services differ greatly. The degree of activity on these platforms, the participation of Internet users, and the reputation of the hospitals are also studied. In total, 165 profiles are analyzed. The results are processed in a statistical software program and various tests establish whether there are

significant relations. It was observed that the level of health-care services of the country was not correlated with the presence and activity of the hospitals on social media, nor with the interaction of Internet users. In addition, a correlation between social-media presence and reputation was detected in the country with the most developed health-care services (Spain). In conclusion, the fact that a country has more health-care resources neither implies that its hospitals have either a greater presence or are more active on social media, nor that the public interact more with those hospitals.

Keywords

Digital communication, social media, health, Facebook, Twitter, YouTube, Instagram.

1. Introduction and state of the question

The latest investigations show a rising tendency in the use that hospitals make of social media. Facebook is the social media platform with the highest presence among the most prestigious hospitals at a global level, followed by Twitter and YouTube; on the contrary, the least used are Vimeo and Flickr. This information is taken from a study of the hospitals that occupy the 100 highest rankings for each continent on the Webometrics Ranking Web of Hospitals of the World (Benítez-Berrocal & Faba-Pérez, 2016).

**Will better performing health-care services have higher profiles and be more active on social media?
A comparative study between hospitals from Colombia and Spain**

Analyzing the situation by specific countries, it may be observed that, on average, the best hospitals within the United States have a presence on 3.3 platforms (Smith, 2017). Using the Truven Health Analytics 2015 listing of the 100 Top Hospitals, Smith (2017) observed that 95% were present on Facebook and 75% on Twitter and/or YouTube. Other authors contributed different figures. Thus, Griffis *et al.* (2014) detailed that 94.41% of hospitals had a Facebook page and 50.82% used Twitter, and practically all of them were hosted on Yelp (99.14%) and on Foursquare (99.41%). Glover *et al.* (2015), in turn, highlighted that 88% of US hospitals have a Facebook page, whether internally managed or shared with a health-care company. Greater engagement on Facebook and Twitter in statistical terms corresponded to the largest hospitals (Wong *et al.*, 2016). All childrens' hospitals maintained profiles on Facebook and Twitter and the majority used YouTube (82%), Google+ (53%) and Pinterest (69%) (Wong *et al.*, 2016).

Among the 15 private hospitals analyzed in Ankara (Turkey) by Gülnur İlgin and Özgür Uğurluoğlu (2018), 100% used Facebook, followed by Twitter (93.3%), Instagram (66.7%), YouTube (33.3%) and LinkedIn (26.7%). Lower figures were obtained for Canada, according to which 58% of hospitals had a Facebook page (Medina-Aguerreberre, Buil-Gazol & Heath, 2015). A study covering western Europe reported that the number of hospitals using social media was minimal (van de Belt, Berben, Samsom, Engelen & Schoonhoven, 2012). In Italy, for example, less than 8% of both public and local health authorities in 2014 maintained social media profiles (Vanzetta *et al.*, 2014).

In Spain, 34.2% of the 787 hospitals had at least one profile on Facebook, Twitter or YouTube in December 2015, a notably lower figure when compared with the results from hospitals in the United States of America (Martínez-Millana, Fernández-Llatas, Basagoiti Bilbao, Traver Salcedo & Traver Salcedo, 2017). Despite all that, it was ten times greater than what had been noted in 2011 (Martínez-Millana *et al.*, 2017). Public hospitals were more active on Twitter (with a statistically reliable ratio), while private hospitals preferred Facebook and YouTube (Martínez-Millana *et al.*, 2017).

If the sample is reduced to the 100 included in the 2015 Health Reputation Monitor, only 27% had their own profile on Facebook; 26% had their own profile on Twitter and 20% on YouTube (Costa-Sánchez, Túñez-López & Videla-Rodríguez, 2016). These figures are similar to others provided by Rando-Cueto and De-Las-Heras Pedrosa (2016) with respect to the use of Twitter among hospitals in the Spanish region of Andalucía. Less than half that region, more specifically 39 of the 97 hospitals (42.21%), are present in this social media. Nevertheless, two years before the analysis, in 2013, only 26 had social media usernames (Rando Cueto & De Las Heras Pedrosa, 2016).

On the contrary, if the 2015 World Ranking of Hospitals is taken as a reference, prepared by the Consejo Superior de Investigaciones Científicas de España –CSIC– [Spanish National Research Council], and the 100 leading hospitals in Spain are analyzed, it may be seen that the social media most widely used by Spanish hospitals are Twitter (68%), Facebook (62%) and YouTube (61%); and the least widely used are Pinterest (4%) and Flickr (3%) (Medina-Aguerreberre, 2018).

In any case, the mere fact of having a presence on any social media is no assurance that its potential will be fully exploited. Thackeray, Neiger, Smith and Van Wagenen (2012) observed that public health agencies were unable to manage their social media in an interactive way and with the commitment of users. It has also been confirmed that Internet users are thankful towards hospitals for the effort of posting information through their social media, but in addition to lack of interaction, some messages are difficult to understand and some publications give a biased image (De Las Heras-Pedrosa, Rando-Cueto, Jambrino-Maldonado & Paniagua-Rojano, 2020). Busto-Salinas (2019), comparing the presence and activity on social media of different health-related organizations, observed that hospitals achieved greater interaction, despite they showed less assiduity and activity than other

**Will better performing health-care services have higher profiles and be more active on social media?
A comparative study between hospitals from Colombia and Spain**

groups. She therefore concluded that social media activity in the health field can influence the number of followers, but it does not correlate with higher levels of public interaction. Comparing the hospital Sant Joan de Dèu Hospital with the Clínica Universidad de Navarra (Spain), Costa-Sánchez and Míguez-González (2018) also confirmed that higher activity on social media does not imply higher levels of interaction with the public. In turn, Medina, Buil and Heath (2016) searched for the Facebook profiles of 300 hospitals in the United States (US) and observed that despite 282 of them maintaining an account, only 13 fulfilled at least 7 of the 10 indicators that were used to measure the quality of their activity on this platform. Huang and Dunbar (2013) detected that most of the profiles of US hospitals on Facebook and, above all, on Twitter instigated unidirectional communication. On the contrary, Huang and Dunbar (2013) affirmed that using these platforms in a bidirectional manner was much more effective to connect with visitors, after a comparison of the hospital communications through Facebook and Twitter. Social media should use photographs, videos, and quality news to stimulate higher levels of use among the target group (Leung, 2014). If greater engagement is wished, patient-specific stories must be used, as Costa-Sánchez and Míguez-González (2018) and Farabough (2013) have pointed out.

There are certain risks when using social media in hospital public relations. Eckler, Worsowicz and Rayburn (2010) presented a series of them, such as violations of patient privacy when too many details are posted on Internet without their consent, and doctors feeling that their own privacy is at stake when they share more information than they would during an ordinary visit to the consulting room. They likewise pointed out that patients can misinterpret the on-line comments of a doctor and can be over-dependent on social media to connect with their doctors, ignoring the conventional channels of communications (such as telephone calls, consulting room visits...). Other authors have also detected that the use of these platforms can compromise patient confidentiality and privacy (Andersen, Medaglia & Henriksen, 2012; Chretien & Kind, 2013). Given this situation, Eckler *et al.* (2010) indicated that “health care organizations must adopt clear policies regarding the use of social media and must educate physicians and staff about their expectations regarding what is appropriate and what is inappropriate.”

Maintaining suitable social-media profiles can be a good indicator of hospital quality and user satisfaction. Analyzing 40 hospitals within and around New York, Timian, Rucpic, Kachnowski and Luisi (2013) found that the number of likes on Facebook had a positive association with the recommendations of clients and a negative association with the mortality rate at 30 days. In addition, a good score on Facebook and greater use of this social media platform was related with a lower average of readmissions (Glover *et al.*, 2015). The use of social media showed a positive correlation with patient assessments of their hospital experience in general and the willingness of patients to recommend the center (McCaughy *et al.*, 2014). Ways of achieving improvements to health education in relation to cardiovascular health through messages published on Twitter have also been studied (Bosley *et al.*, 2013). The social communications media are thought to play a fundamental role in the improvement of pathological processes, together with the quality of life and the wellbeing of users, provided that they center on the patient and their relatives and carers (De Las Heras-Pedrosa *et al.*, 2020).

As Díaz (2011, p. 33) stated, “nobody now doubts that communication and health have gone hand in hand for a long time.” The benefits of having a department of communication in these entities are very numerous and very important; some studies even manage to link quality of communication with the quality of the health-care assistance that is offered (Anand & Chakravarti, 1981; Keller *et al.*, 2014; Scott, Vojir, Jones & Moore, 2005). In fact, some authors think communication has become a “strategic ally” in the health field. According to Menéndez and Vadillo (2010, p. 13), “not only as a channel for the transmission of information, but also because it contributes to improving the image and the prestige of any organization within the

**Will better performing health-care services have higher profiles and be more active on social media?
A comparative study between hospitals from Colombia and Spain**

sector, from the Administration to scientific companies, including hospital centers, laboratories and even products or services.” It also serves as the basis for the relation between health professionals and users, as part of the service that is identifiable as an element that facilitates user familiarity with the hospitalization process and as an educational mechanism (Costa-Sánchez, 2012).

Proper communication through social media is therefore needed by hospitals, but with various proposals for improvement according to the public, so that a true dialogue may be achieved that will benefit all stakeholders affected by hospital communications: “a greater role of patients in the messages issued by the health entity; more understandable information and with less biased content according to the interests of health centers; and the work of professionals specialized in health communication and in social networks as responsible for this activity in the hospital; among other” (De Las Heras-Pedrosa *et al.*, 2020).

2. Hypotheses and research questions

Despite the various studies that may be found in the literature that analyze the social-media presence of hospitals within a given territory, no studies have been found that compare the use that hospitals in different countries make of social media and the social media presence in those countries. Neither have any investigations been found that determine whether there is a correlation between the use of social media within hospitals and the level of health care in the country. Finally, no investigations have been found that determine whether the reputation of the centers have any correlation with their presence and activity on social media and their interaction with users depending on the national health-care levels.

Given that, *a priori*, the more economic resources a country has, the higher the chances of investment in communication, and in view of the need for social media through which to communicate with the public, the following hypotheses may be formulated:

H1. The greater the health resources of a country, the higher the levels of communicative activity on social media of the hospitals within that country.

H2. In countries with fewer economic resources, the most prestigious hospitals will have the greatest presence and activity on social media.

The following research questions were formulated, in order either to accept or to reject the first hypothesis:

PI1. Are hospitals from countries with higher levels of health care resources more present on social media?

The latest investigations show a rising tendency in the use of social media among hospitals, although social-media use among hospitals in different countries has up until now not been compared depending on their health-care resources.

PI2. Are hospitals within countries with higher levels of health-care resources more active on social media?

Current literature shows that the mere fact of having a profile in some social media does not mean that good use of its full potential is made. In general, the available studies show that hospitals are not managing their social media in an interactive way and with a commitment towards the user, but it has not been analyzed whether there are differences depending on the health-care resources of the country.

PI3. Does the public interact more with hospitals through social media in countries with greater health-care resources?

According to some studies, Internet users perceive a lack of interaction in some messages from hospitals on these social-media platforms, although it has not been determined whether there are differences between countries depending on their health-care resources.

The following research questions were formulated, in order to either accept or reject the second hypothesis:

**Will better performing health-care services have higher profiles and be more active on social media?
A comparative study between hospitals from Colombia and Spain**

PI4. Do the most prestigious hospitals have a greater presence on social media in those countries with fewer health care resources?

Maintaining acceptable profiles on social media can be a good indicator of both hospital quality and user satisfaction, as various studies have highlighted. In some investigations, the most prestigious hospitals from various countries have been analyzed, although they are not compared according to their health resources.

PI5. Are the most prestigious hospitals more active on social media in those countries with fewer health-care resources?

Several studies conclude that being present in some social network does not mean that good use is being made of its possibilities. It remains to be determined if there are differences between reputation and health resources in the country.

PI6. Do the most prestigious hospitals receive more feedback from Internet users on social media in those countries with fewer health care resources?

Although several authors highlight the lack of interaction of some hospital profiles, it has not been studied if there are differences between the reputation and the health resources of the territory.

3. Methodology

A sample of hospitals from Colombia and Spain was studied to respond to the research questions proposed above. These two countries have similar population levels, but very different economic and health-care characteristics. In Colombia, there are 44,164,417 nationals on the census roll, to which an estimated figure of 4,094,077 unregistered inhabitants may be added, giving a total estimated number of 48,258,494 inhabitants (Gobierno de Colombia, 2018); in Spain there are 46,937,060 inhabitants (Instituto Nacional de Estadística (INE, 2019).

Despite having similar populations, health-care expenditure in Colombia stands at 1,544,636 million Pesos (Ministerio de Salud y Protección Social, 2018) [approximately 350,012,812 Euros in July 2020 (XE, 2020)], whereas in that same year in Spain it was 66,691 million Euros (Ministerio de Sanidad, 2018)¹. At Purchasing Power Parity (PPP) values, per capita expenditure in 2017 stood at 960.2 in the first country and 3,224.1 in the second (OECD, 2019). Colombia has 1.7 hospital beds for every 1,000 inhabitants, while Spain has 3 (Ministerio de Sanidad, Consumo y Bienestar Social, 2018; OECD, 2020b). In the first country, there are 2.2 doctors for every 1,000 inhabitants, when the figure in Spain stands at 3.9 (OECD, 2020a). According to the official sources of each country, there are 3,075 operating rooms in Colombia (Dirección de Prestación de Servicios y Atención Primaria, 2020), while Spain has 4,573 (Ministerio de Sanidad, Consumo y Bienestar Social, 2018). The first nation has a per capita Gross Domestic Product (GDP) of 6,180 dollars and the second has a GDP of 29,340 dollars (World Bank, 2018).

The hospitals that enter into the sample were obtained from the *Monitor de Reputación Sanitaria* (MRS) [Monitor of Health Care Performance] (Análisis e Investigación, 2017), from which the ranking of the hospital centers was also obtained. In both cases, the last available study was selected: 2016 for Colombia and 2017 for Spain. Within the former nation, the report included the 25 best IPS (hospitals and clinics), while the 100 most highly ranked hospitals were included in the latter nation. The report allocates a particular ranking for each center, as well as a specific score.

Facebook, Twitter, YouTube and Instagram accounts of the hospitals listed in the MRS were consulted, to establish their social-media presence. Together with WhatsApp, these were the most widely used social media in both Colombia and Spain in 2017 (Elogia and IAB Spain, 2017; Ministerio de Tecnologías de la Información y las Comunicaciones, 2017). It must

¹ The differences must be treated with prudence, given that the figures are taken from different sources.

**Will better performing health-care services have higher profiles and be more active on social media?
A comparative study between hospitals from Colombia and Spain**

nevertheless be pointed out that the use of each network differs from one country to the other, and levels of use are lower in Colombia: 88% of Colombians and 91% of Spaniards use Facebook; 20% of Colombians and 50% of Spaniards use Twitter; 48% and 71% use YouTube; and 34% and 45% use Instagram, respectively (Elogia y IAB Spain, 2017; Ministerio de Tecnologías de la Información y las Comunicaciones, 2017).

Only the specific profiles of each hospital were taken into account, rather than those shared (for example, from the local health authority, health district, health-care group, etc.). Shared networks were not studied because they are not centered on one single specific hospital. At present, the communication of public hospitals belonging to the health care system are in some cases centralized within the health authority of each Autonomous Community, as well as the communication of some private hospitals, which on occasions are concentrated in the health-care group.

Previous studies have compared both techniques (centralization and decentralization of hospital communication), and it has been observed that where there are more communication departments, the news published by the media is more often framed in places belonging to the region and more explanatory and interpretative compositions are usually disseminated. In addition, there is a greater participation of readers in digital news, in terms of frequency and number of votes and recommendations in social networks (Busto-Salinas, 2017). In this study we wanted to know only the situation of these centers, since communication today is “an added value” for any hospital (Costa-Sánchez, 2011, p. 19) and has reached a point where it is “inevitable” to create these departments in these entities, since “human relations are the basis of public relations” (Kirdar, 2007) and “the scope of 2.0 generates a potential for conversation that hospital institutions should take advantage of to become a source of reference information for their public” (Costa-Sánchez & Míguez-González, 2018). Moreover, for some researchers, this practice in the hospital world has become more recognized, more necessary and more important (Henderson, 2005), even its value has increased (Springston & Weaver Lariscy, 2005).

The social-network profiles that had been updated in the previous year were taken into account, except for YouTube, due to its characteristics. In total, 165 profiles (91 in Spain and 74 in Colombia) were analyzed. The author of this study gathered the data during the months of August and September, 2018. The data were introduced into the SPSS statistical software program and various statistical tests were performed to establish different relations, including frequencies, descriptive analyses, crossed tables, comparison of means and correlations. The confidence intervals of the statistical tests were set at equal to or less than 0.5. In this way, it can be established that a statistical relationship exists and that the results are not the result of chance. In all variables, tests have been carried out to detect extreme cases and eliminate them in order to avoid distorting the results.

4. Analysis and results

Analyzing the 125 hospitals/health centers, 165 profiles were detected. It was confirmed that the hospitals within Colombia had a greater statistical presence on social media. In all, 74 profiles were detected among the 25 hospitals analyzed in that country, while 91 profiles were found among the 100 Spanish hospitals. It means that, on average, each specialized health-care center in Colombia maintained 2.96 social-media accounts, unlike the lower figure in Spain of 0.91 accounts. In Colombia, all the hospitals under analysis (100%) have a presence in at least one social network, in contrast with the lower figure of 42% in Spain. In all, 12% of institutions from Colombia and 16% from Spain had only one profile; while 16% in Colombia and 10% in Spain had 2 profiles; 16% in Colombia and 9% in Spain had three profiles; and, finally, 36% in Colombia and 7% in Spain had four social-media profiles. The median was situated at 3 profiles for Colombia and 0 for Spain.

**Will better performing health-care services have higher profiles and be more active on social media?
A comparative study between hospitals from Colombia and Spain**

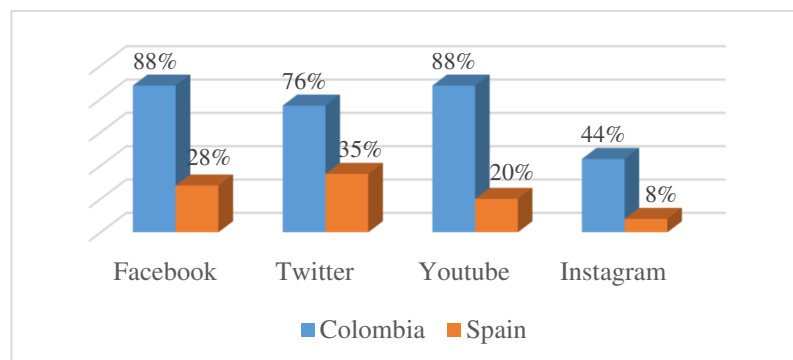
Table 1: Descriptive analysis of the number of social media from both Colombia and Spain and percentage social-media presence of hospitals in Colombia and Spain.

Social media presence	Colombia	Spain
Num. of hospitals under analysis	25	100
Total of social media profiles	74	91
Mean	2.96	0.91
Median	3.0	0.0
Std. Dev.	1.0198	1.2956
Minimum	1	0
Maximum	4	4
Standard error of average	0.2040	0.1296
Variance	1.040	1.679
With at least one profile	100%	42%
Only one profile	12%	16%
Two profiles	16%	10%
Three profiles	36%	9%
Four profiles	36%	7%

Source: Own elaboration from data processed in the SPSS statistical program.

Divided by platforms, 88% of the hospitals/clinics from Colombia had a recently updated public social-media profile on Facebook. When the figure in Spain was examined, the amount fell to 28%. The relation was significant at 0.000, with a contingency factor of 0.440. The same was observed with Twitter: 76% of the hospitals in Colombia maintained an account with that social-media network, in contrast with 35% of Spanish hospitals. The relation was significant at 0.000 with a contingency factor of 0.314. With regard to YouTube, the difference was even more apparent: 88% for Colombia and 20% for Spain (statistically significant relation of 0.000 and contingency factor of 0.499). With regard to Instagram, 44% of hospitals in Colombia maintained a profile in comparison with 8% of hospitals in Spain (statistically significant relation of 0.000 and contingency factor of 0.372).

Figure 1: Presence on social-media networks of hospitals from both Colombia and Spain.



All differences are statistically significant. Source: Own elaboration.

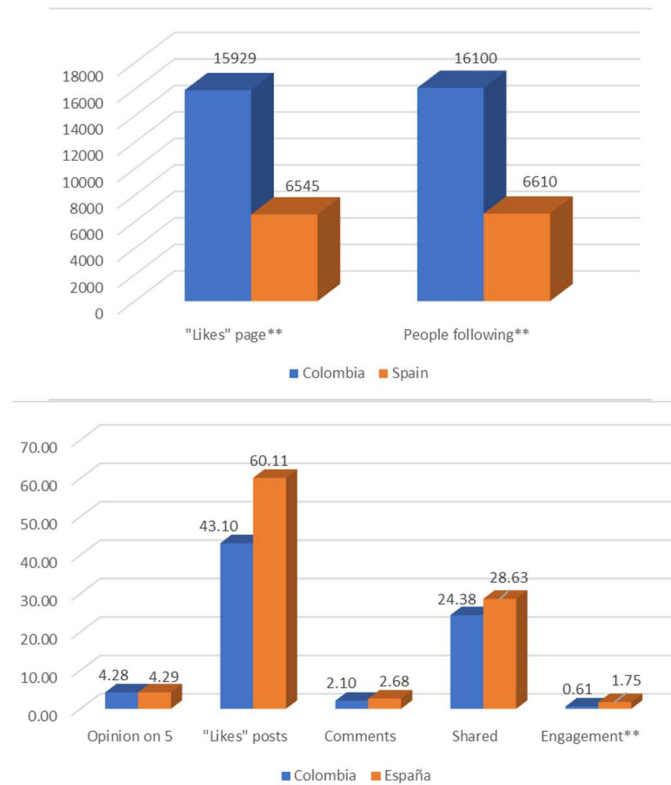
**Will better performing health-care services have higher profiles and be more active on social media?
A comparative study between hospitals from Colombia and Spain**

Analyzing whether hospitals are more likely to be present in several social networks if they are already in one, only a significant difference has been detected between Facebook and Twitter in Colombia (significance 0.009). This implies that Colombian centers that are present on Facebook are more likely to be present on Twitter and *vice-versa*. In Spain, on the contrary, there is a correlation between the presence on a social network with respect to the others, at a significance level of 0.000 in all cases. This means that when hospitals maintain an open account on Facebook, for example, there is a greater chance that they will also have one on Twitter, YouTube and Instagram, and *vice-versa*. This may imply that the presence on social media in Spain is hardly balanced: few hospitals have a high presence and many hospitals have hardly any presence. It is worth recalling that only 26% of our sample of Spanish hospitals have a presence on at least two social networks.

4.1. Facebook

In addition to the mere presence on social-media networks, it was also analyzed whether the activity on those websites showed statistical differences between countries, such as the number of publications, followers, commentaries, visits, etc. Thus, for example, it was determined that there were more people who gave likes on Facebook from hospitals in Colombia than in Spain. The average in the case of the American country was 15,929 likes for each profile, while in Spain it was 6,545 likes (statistically significant relation of 0.007). The average for engagement was also significant, but in this case, it is lower for Colombia: the analyses show 0.61 for this country and 1.75 for Spain (statistically significant relation of 0.000). It implies that the internet users of Spanish hospitals interacted more with posts than the Colombian internet users. No significant differences were found neither for opinions of the Internet users on a scale of 5, nor for average likes of the posts, nor for average number of comments or publications shared.

Figure 2: Average Facebook metrics analyzed for hospitals in Colombia and in Spain.



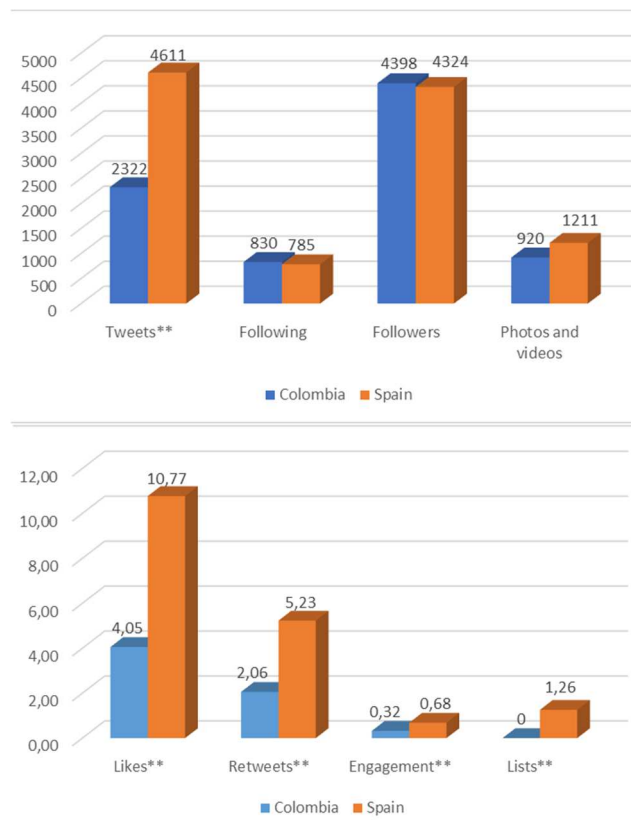
** Statistically significant relation. Source: Own elaboration.

**Will better performing health-care services have higher profiles and be more active on social media?
A comparative study between hospitals from Colombia and Spain**

4.2. Twitter

With regard to Twitter, hospitals in Spain published a higher average number of tweets than their Colombian counterparts (5,343 and 4,352, respectively), with a significance level of 0.010. They likewise received more likes for their posts (10.77 with respect to 4.05 from Spain, at a significance level of 0.000) and they sent more retweets (5.23 and 2.06, in the same order, at a significance level of 0.001). Average engagement is also higher in Spain (0,68) than in Colombia (0.32), at a confidence level of 0.045, as well as the number of lists that are included (1.26 and 0.00) at a level of 0,006.

Figure 3: Average Twitter metrics analyzed for hospitals in Colombia and in Spain.



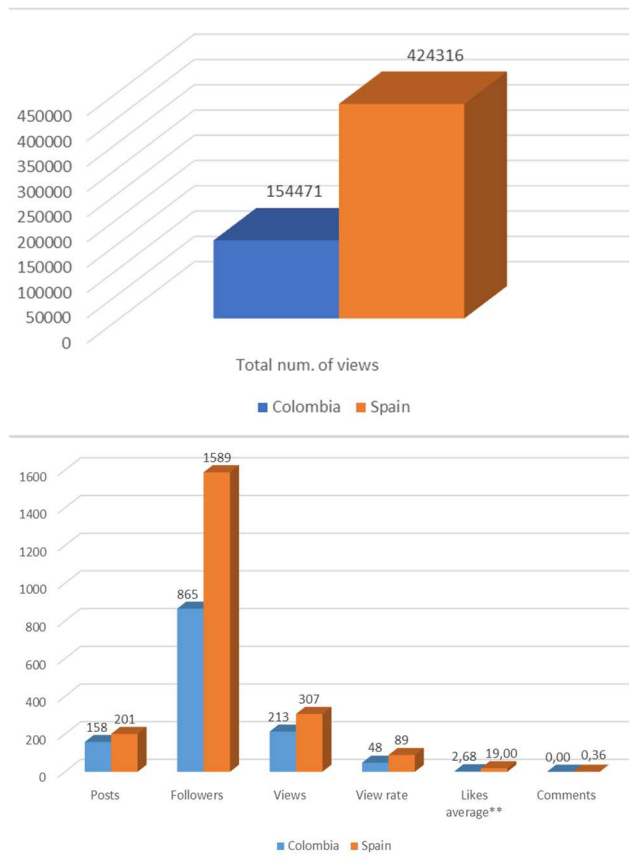
** Statistically significant relation. Source: Own elaboration.

4.3. YouTube

With regard to YouTube, only one significant relation was detected in relation to the average number of likes given to posts, situated at 19 in Spain and at 2.68 in Colombia. The relation is significant at a confidence level of 0.004. The other metrics that were studied, even though their averages were higher in the Spanish hospitals, yielded no statistically reliable relations.

**Will better performing health-care services have higher profiles and be more active on social media?
A comparative study between hospitals from Colombia and Spain**

Figure 4: Average YouTube metrics analyzed for hospitals in Colombia and in Spain.



** Statistically significant relation. Source: Own elaboration.

4.4. Instagram

With regard to Instagram, no statistically significant relation was detected between the hospitals of Colombia and Spain and the number of posts, followers and people followed. In relation to the first variable, the hospitals from the South American country had an average of 360 compared to 309 in Spain. These hospitals also followed more profiles (700 *versus* 223), although they had fewer followers (2,689 *versus* 2.899).

4.5. Relation with reputation

In addition to their mere presence on social media networks and their activity dividing the hospitals by country, it was also analyzed whether the most prestigious hospitals had a greater presence and were more active on social networks. To do so, the scores provided by the *Monitor de Reputación Sanitaria* [Health-Care Reputation Monitor] were used for each hospital, which range from 10,000 points awarded to the most prestigious to 3,000 obtained by those in the worst position.

In this way, in Spain, various relations were found, more specifically for Twitter, YouTube and Instagram. The hospitals that tweeted on Twitter obtained an average score of 4,983 points (unlike the average score of 4,212 of those that never tweeted, at a confidence level of 0.016) and those that used YouTube, 5,167 (unlike 4,310 of those that did not, at a confidence level of 0.023). Those present on the social media network of images (Instagram), obtained an average of 6,035 points rather than the 4,355 points obtained by those that were not present, yielding a significant relation at a confidence level of 0.003. On Facebook, the average points for users of this social-media network rose to 4,948 and it fell to 4,311 for those with no presence, even though this relation was not of statistical significance (0.063). A correlation

**Will better performing health-care services have higher profiles and be more active on social media?
A comparative study between hospitals from Colombia and Spain**

was also found between the scores from the Monitor and the number of social networks that were used (statistically significant relation at 0.010).

In Colombia, the average score of the hospitals was higher when one of the four social-media networks was analyzed. For example, those present on Facebook had an average score of 4,948 with respect to the score of 4,311 of those with no Facebook presence. The same thing happened with Twitter (4,983 and 4,212, respectively), YouTube (5,167 and 4,310) and Instagram (6,035 and 4,355). Nevertheless, none of these relations was statistically significant. Neither was there any correlation between the score on the Monitor and the number of social networks that were used.

In addition to the mere presence on social-media networks, it was analyzed whether the scores of the hospitals on the *Monitor de Reputación Sanitaria* could be correlated with greater activity within each of the social-media websites.

Both in Colombia and in Spain, a positive correlation was visible for Facebook between the score on the Monitor and the number of people who indicated a “like” on the page (in Colombia, a Pearson’s correlation coefficient of 0.690 at a confidence level of 0.000 and in Spain, 0.499 at a confidence level of 0.008) and the number of people following them (in Colombia, a Pearson’s correlation coefficient of 0.693 at a confidence level of 0.000 and in Spain, 0.511 at a confidence level of 0.006). In the South American country, another two significant relations were detected referring to scores on the barometer that were not present in Europe: the average numbers of comments (Pearson coefficient of 0.465 at a confidence level of 0.004) and the average for engagement, although it was negative (-0.506 at a confidence level of 0.002). It means that the higher the average score of the hospitals in Colombia, the greater the probability that they will have less interaction or commitment among Internet users.

Regarding Twitter, hospitals with greater reputation, both in Colombia and in Spain, published more on this social-media network (in the first country, a Pearson coefficient correlation of 0.582 at a confidence level of 0.014, and in the second country, 0.527 at a confidence level of 0.001) and included more photos and videos (0.509 at a confidence level of 0.026 and 0.547 at a confidence level of 0.001, respectively). Nevertheless, in Colombia, the hospitals of greater prestige had more followers (0.554 at a confidence level of 0.014), although they achieved less commitment (-0.504 at a confidence level of 0.033). In Spain, on the contrary, they included more lists (Pearson correlation of 0.465 at a confidence level of 0.005) and they obtained more likes on average for each publication (0.388 at a confidence level of 0.021).

As for YouTube, a positive correlation was noted between the score on the Health-Care Reputation Monitor and the number of videos uploaded to this social-media network (Pearson correlation coefficient of 0.777 at a confidence level of 0.000). Thus, it may be assumed that hospitals with a greater reputation usually include more audiovisuals in this platform. Nevertheless, no further statistically significant relations were found between the score for the hospitals and number of followers, average view rate and view rate, likes and comments on videos, and the total number of views. In Colombia, no significant relationship has been detected, so it can be deduced that the reputation of hospital centers is not related to a greater use or impact by YouTube users.

As for Instagram, no statistically significant relationship has been detected between the hospitals’ score on the Health Reputation Monitor and the number of publications, followers or people followed, either in Colombia or in Spain.

5. Conclusions

After analyzing the 165 profiles of the 125 hospitals from Colombia and Spain that are listed on the Health-Care Reputation Monitor on the social-media networks of Facebook, Twitter, YouTube and Instagram, a response may be given to the research questions proposed in this study, referring to the statistically significant relations obtained:

PI1. Are hospitals from countries with higher levels of health care resources more present on social media?

No, in fact, in the sample that was selected quite the opposite was observed. It was confirmed that the hospitals in Colombia, that have fewer health-care resources than Spain and whose inhabitants make less use of social-media networks, showed a greater presence on these platforms. In all, 88% maintained a profile on Facebook (compared to 28% of the Spanish hospitals), once again 88% on YouTube (compared to 20% of Spanish hospitals), 76% on Twitter (compared to 35% of the Spanish hospitals) and 44% on Instagram (compared to 8% of the Spanish hospitals). All the relations were statistically significant.

PI2. Are hospitals within countries with higher levels of health-care resources more active on social media?

No, only on Twitter. On this platform, the Spanish hospitals (in a country with greater health-care resources) showed greater activity, given that they published more tweets and retweets and included more lists (with statistically significant differences in all cases). However, in the other three platforms analyzed, no statistically significant differences have been detected, so it can be determined that the amount of health resources is not a variable that correlates with the overall activity on these platforms.

PI3. Does the public interact more with hospitals through social media in countries with greater health-care resources?

No. The Colombian public (who have more limited health-care resources) participated more in the Facebook profiles than the Spanish (which have quantitatively better health care resources). The hospitals of the American country achieved more likes on the page and more followers. On the contrary, the Spanish hospitals had more likes for the posts and a higher rate of engagement on Twitter. In Spain, more likes were also received for YouTube videos. On Instagram, in contrast, no significant differences were detected. It can therefore be affirmed that there was no correlation between the health-care resources of the country and public interaction on the hospital social-media networks.

PI4. Do the most prestigious hospitals have a greater presence on social media in those countries with fewer health care resources?

No, quite the contrary takes place. It was observed that in Spain, the country with greater health-care resources, there was a correlation between reputation and the number of profiles on social media networks, so it can be deduced that the more reputable a hospital is, the more likely it is to be in several social networks. The most well-known hospitals have a greater presence on Twitter, YouTube and Instagram, with statistically significant relations in all cases. In contrast, in Colombia, no statistically significant relation was found.

PI5. Are the most prestigious hospitals more active on social media in those countries with fewer health-care resources?

No, there were no differences between one country and another. In Twitter, both in Colombia and in Spain, the most prestigious hospitals included more posts, photos and videos. In Spain, the best-known hospitals also published more videos on YouTube. On the contrary, no differences in relation with reputation, neither in Colombia nor in Spain, were detected on either Facebook or Instagram.

PI6. Do the most prestigious hospitals receive more feedback from Internet users on social media in those countries with fewer health care resources?

**Will better performing health-care services have higher profiles and be more active on social media?
A comparative study between hospitals from Colombia and Spain**

No, there are no differences between one country and another. On Facebook, both the hospitals from Colombia and from Spain get more likes on their profiles and gained more followers the more famous they are. In Colombia, the same happened on Twitter with the number of followers and in Spain with the numbers of likes for posts. In contrast, no statistically significant differences have been detected between reputation and feedback on YouTube or Instagram.

Accordingly, the two hypotheses proposed are rejected:

H1. The greater the health resources of a country, the higher the levels of communicative activity on social media of the hospitals within that country.

Rejected. In fact, the hospitals had a greater presence on social-media networks within the country with fewer health-care resources. No differences were detected neither for activity nor for the interaction of Internet users.

H2. In countries with fewer economic resources, the most prestigious hospitals will have the greatest presence and activity on social media.

Rejected. In fact, a greater presence in social networks of the most reputable hospitals in the country with greater health resources has been detected. No differences have been detected in the activity or interaction of internet users.

In conclusion, it can be stated that the amount of health resources in a country does not imply a greater presence and communication activity, at least in the social networks by the hospitals analyzed in the sample. In addition, it was observed that the situation in Spain is unbalanced: a few centers, which are also the most reputable, have a lot of presence in these platforms and many hospitals have little presence. Precisely, the rates of engagement or commitment found in this study in the social networks of Spanish hospitals –despite their limited presence and activity– is a sample of the interest of citizens in the information published by these entities in cyberspace. These specialized centers should be present on the Internet, providing first-hand data and facilitating tools for creation, distribution and support. Given their technological and human volume, they constitute significant sources of information and it is, therefore, recommended that they incorporate communications departments and increase their presence and activity on social media, offering not only corporative information, but also information of general interest with reliable and quality content.

6. Limitations and future lines of investigation

In this research, the quantitative paradigm has been used and only the correlations have been studied, not the causalities. Furthermore, previous studies indicate that the presence and use of social networks is not well balanced, since few hospitals have much activity and many hospitals have little activity. Therefore, a more detailed analysis of the statistical distribution could yield slightly different results. It is recommended to continue with the same line of study in future research, undertaking qualitative analyses in terms of the type of publications in social networks, updating, responses to users, etc. Likewise, the sample could be extended to include other countries and with other health-related organizations. The causality between the variables might also be worth analyzing.

References

- Análisis e Investigación (2017). *Monitor de Reputación Sanitaria (MRS)*. Retrieved from <http://www.merco.info/es/monitor-reputacion-sanitaria-hospitales>
- Anand, R. C. & Chakravarti, A. (1981). Public Relations in Hospital. *Health and Population (Perspectives & Issues)*, 4(4), 252–259.
- Andersen, K. N., Medaglia, R. & Henriksen, H. Z. (2012). Social media in public health care: Impact domain propositions. *Government Information Quarterly*, 29(4), 462–469. <https://www.doi.org/10.1016/j.giq.2012.07.004>

**Will better performing health-care services have higher profiles and be more active on social media?
A comparative study between hospitals from Colombia and Spain**

- Benítez-Berrocal, M. & Faba-Pérez, C. (2016). Presence of social networks in the health sector: a case-study on the best positioned hospitals in the world. *Ibersid: Revista de Sistemas de Información y Documentación*, 10(2), 21–30. Retrieved from <https://ibersid.eu/ojs/index.php/ibersid/article/view/4334/3849>
- Bosley, J. C., Zhao, N. W., Hill, S., Shofer, F. S., Asch, D. A., Becker, L. B. & Merchant, R. M. (2013). Decoding twitter: Surveillance and trends for cardiac arrest and resuscitation communication. *Resuscitation*, 84(2), 206–212. <https://www.doi.org/10.1016/j.resuscitation.2012.10.017>
- Busto-Salinas, L. (2017). The Role of Communication Departments in the Spanish Health Sector: A Comparative between Castilla y León and Galicia. *Trípodos*, 40, 133–159. Retrieved from http://www.tripodos.com/index.php/Facultat_Comunicacio_Blanquerna/article/view/453
- Busto-Salinas, L. (2019). Healthcare and social networks: Which organizations are more active and with which does the public interact more? *El Profesional de la Información*, 28(2). <https://www.doi.org/10.3145/epi.2019.mar.15>
- Chretien, K. C. & Kind, T. (2013). Social media and clinical care: Ethical, professional, and social implications. *Circulation*, 127(13), 1413–1421. <https://www.doi.org/10.1161/CIRCULATIONAHA.112.128017>
- Costa-Sánchez, C. (2011). Public health crisis informative treatment: the headlines about influenza A in Spanish press. *Revista de Comunicación de la SEECI*, 25, 29–42. <https://www.doi.org/10.15198/seeci.2011.25.29-42>.
- Costa-Sánchez, C. & Míguez-González, M. I. (2018). Use of social media for health education and corporate communication of hospitals. *El Profesional de la Información*, 27(5), 1145–1154. <https://www.doi.org/10.3145/epi.2018.sep.18>
- Costa-Sánchez, C., Túniz-López, M. & Videla-Rodríguez, J.-J. (2016). Spanish hospitals in the social web. The management of Facebook and Twitter by Hospital Sant Joan de Déu (Barcelona). *Revista Latina de Comunicación Social*, 71, 1108–1130. <https://www.doi.org/10.4185/RLCS-2016-1137>
- Costa-Sánchez, C. (2012). The Hospital Communication office. Theoretical proposal and approach to the reality of the communication offices of public hospitals in Galicia. *Doxa Comunicación: revista interdisciplinar de estudios de comunicación y ciencias sociales*, 14, 175–197. <https://www.doi.org/10.31921/doxacom.114a8>
- De Las Heras-Pedrosa, C., Rando-Cueto, D., Jambrino-Maldonado, C. & Paniagua-Rojano, F. J. (2020). Analysis and study of hospital communication via social media from the patient perspective. *Cogent Social Sciences*, 6(1), 1718578. <https://www.doi.org/10.1080/23311886.2020.1718578>.
- Díaz, H. A. (2011). La comunicación para la salud desde una perspectiva relacional. In U. Cuesta Cambra, T. Menéndez Hevia & A. Ugarte Iturrizaga (Eds.), *Comunicación y salud: nuevos escenarios y tendencias* (pp. 33–49). Madrid: Complutense.
- Dirección de Prestación de Servicios y Atención Primaria (2020). *Registro Especial de Prestadores de Servicios de Salud (REPS)*. Retrieved from <https://prestadores.minsalud.gov.co/habilitacion/>
- Eckler, P., Worsowicz, G. & Rayburn, J. W. (2010). Social Media and Health Care: An Overview. *PM&R*, 2(11), 1046–1050. <https://www.doi.org/10.1016/j.pmrj.2010.09.005>
- Elogia y IAB Spain (2017). *Estudio anual de redes sociales*. Retrieved from https://iabspain.es/wp-content/uploads/iab_estudiodedessociales_2017_vreducida.pdf
- Farabough, L.-A. (2013). *Using Facebook as a public relations tactic: A look at how hospitals are engaging with fans*. Doctoral Thesis. University of Arkansas at Little Rock.

**Will better performing health-care services have higher profiles and be more active on social media?
A comparative study between hospitals from Colombia and Spain**

- Glover, M., Khalilzadeh, O., Choy, G., Prabhakar, A. M., Pandharipande, P. V. & Gazelle, G. S. (2015). Hospital Evaluations by Social Media: A Comparative Analysis of Facebook Ratings among Performance Outliers. *Journal of General Internal Medicine*, 30(10), 1440–1446. <https://www.doi.org/10.1007/s11606-015-3236-3>
- Gobierno de Colombia (2018). *Censo nacional de población y vivienda*. Retrieved from <https://www.dane.gov.co/index.php/estadisticas-por-tema/demografia-y-poblacion/censo-nacional-de-poblacion-y-vivenda-2018>
- Griffis, H. M., Kilaru, A. S., Werner, R. M., Asch, D. A., Hershey, J. C., Hill, S. & Merchant, R. M. (2014). Use of Social Media Across US Hospitals: Descriptive Analysis of Adoption and Utilization. *Journal of Medical Internet Research*, 16(11), e264. <https://www.doi.org/10.2196/jmir.3758>.
- Henderson, J. K. (2005). Evaluating public relations effectiveness in a health care setting. *Journal of Health and Human Services Administration*, 28(1–2), 282–321.
- Huang, E. & Dunbar, C. L. (2013). Connecting to patients via social media: A hype or a reality? *Journal of Medical Marketing*, 13(1), 14–23. <https://www.doi.org/10.1177/1745790413477647>
- İlgün, G. & Uğurluoğlu, Ö. (2018). How Turkish Private Hospitals use Social media: A Qualitative Study. *Journal of Social Service Research*, 1–10. <https://www.doi.org/10.1080/01488376.2018.1479339>
- Instituto Nacional de Estadística (INE) (2019). *Cifras de población definitivas a 1 de enero de 2019*. Retrieved from https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176951&menu=ultiDatos&idp=1254735572981
- Keller, A. C., Bergman, M. M., Heinzmann, C., Todorov, A., Weber, H. & Heberer, M. (2014). The relationship between hospital patients' ratings of quality of care and communication. *International Journal for Quality in Health Care*, 26(1), 26–33. <https://www.doi.org/10.1093/intqhc/mzto83>
- Kirdar, Y. (2007). The Role of Public Relations for Image Creating in Health Services: A Sample Patient Satisfaction Survey. *Health Marketing Quarterly*, 24(3–4), 33–53. <https://www.doi.org/10.1080/07359680802119017>
- Leung, R. (2014). Increasing dynamic capabilities of health organizations with social media. In *Social media in strategic management (Advanced Series in Management, Vol. 11)* (pp. 129–142). [https://www.doi.org/10.1108/S1877-6361\(2013\)0000011011](https://www.doi.org/10.1108/S1877-6361(2013)0000011011)
- Martínez-Millana, A., Fernández-Llatas, C., Basagoiti Bilbao, I., Traver Salcedo, M. & Traver Salcedo, V. (2017). Evaluating the Social Media Performance of Hospitals in Spain: A Longitudinal and Comparative Study. *Journal of Medical Internet Research*, 19(5), e181. <https://www.doi.org/10.2196/jmir.6763>
- McCaughey, D., Baumgardner, C., Gaudes, A., LaRochelle, D., Wu, K. J. & Raichura, T. (2014). Best Practices in Social Media: Utilizing a Value Matrix to Assess Social Media's Impact on Health Care. *Social Science Computer Review*, 32(5), 575–589. <https://www.doi.org/10.1177/0894439314525332>
- Medina-Aguerrebere, P. (2018). The impact of social media in branding communication of Spanish hospitals. *AdComunica*, 15, 215–233. <https://www.doi.org/10.6035/2174-0992.2018.15.11>
- Medina-Aguerrebere, P., Buil-Gazol, P. & Heath, R. L. (2015). Brand dissemination in Canadian hospitals through Facebook. *The International Journal of Communication and Health*, 7, 27–39. Retrieved from <http://communicationandhealth.ro/upload/number7/PABLO-MEDINA.pdf>
- Medina, P., Buil, P. & Heath, R. L. (2016). Establishing and demonstrating US hospital brands through Facebook. *Observatorio*, 10(3), 20–40. <https://www.doi.org/10.15847/obsOBS1032016912>

**Will better performing health-care services have higher profiles and be more active on social media?
A comparative study between hospitals from Colombia and Spain**

- Menéndez Prieto, M. D. & Vadillo Olmo, F. J. (2010). *El plan de comunicación hospitalario: Herramienta de gestión sanitaria*. Alicante: Club Universitario.
- Ministerio de Salud y Protección Social (2018). Estructura del gasto en Salud Pública en Colombia. *Papeles En Salud*, 17. Retrieved from <https://www.minsalud.gov.co/sites/rid/Lists/BibliotecaDigital/RIDE/DE/PES/estructura-gasto-salud-publica-colombia.pdf>
- Ministerio de Sanidad (2018). *Estadística de Gasto Sanitario Público: principales resultados*. Retrieved from <https://www.msrebs.gob.es/estadEstudios/estadisticas/docs/EGSP2008/egspPrincipalesResultados.pdf>
- Ministerio de Sanidad, Consumo y Bienestar Social (2018). *Sistema de Información de Atención Especializada (SIAE)*. Retrieved from <https://pestatistico.inteligenciadegestion.msrebs.es/publicoSNS/Comun/ArbolNodos.aspx?idNodo=20675>
- Ministerio de Tecnologías de la Información y las Comunicaciones (2017). *Primera gran encuesta TIC 2017. Estudio de acceso, uso y retos de las TIC en Colombia*. Retrieved from <https://colombiatic.mintic.gov.co/679/w3-article-74002.html>
- OECD (2019). *OECD Health Statistics 2019: Health Expenditure and Financing*. Retrieved from <https://www.oecd.org/health/health-data.htm>
- OECD (2020a). *Doctors (indicator)*. <https://www.doi.org/10.1787/4355e1ec-en>
- OECD (2020b). *Hospital beds (indicator)*. <https://www.doi.org/10.1787/0191328e-en>
- Rando Cueto, D. & De Las Heras Pedrosa, C. (2016). Analysis of Corporate Communication Issued by the Andalusian Hospitals Via Twitter. *Opción*, 32(8), 557–576. Retrieved from <http://www.redalyc.org/pdf/310/31048481033.pdf>
- Scott, J., Vojir, C., Jones, K. & Moore, L. (2005). Assessing nursing homes' capacity to create and sustain improvement. *Journal of Nursing Care Quality*, 20(1), 36–42. <https://www.doi.org/10.1097/00001786-200501000-00007>
- Smith, K. T. (2017). Hospital Marketing and Communications Via Social Media. *Services Marketing Quarterly*, 38(3), 187–201. <https://www.doi.org/10.1080/15332969.2017.1363518>
- Springston, J. K. & Weaver Lariscy, R. (2005). Public Relations Effectiveness in Public Health Institutions. *Journal of Health and Human Services Administration*, 28(1/2), 218–245.
- Thackeray, R., Neiger, B. L., Smith, A. K. & Van Wagenen, S. B. (2012). Adoption and use of social media among public health departments. *BMC Public Health*, 12(1), 242. <https://www.doi.org/10.1186/1471-2458-12-242>
- Timian, A., Rucic, S., Kachnowski, S. & Luisi, P. (2013). Do Patients “Like” Good Care? Measuring Hospital Quality via Facebook. *American Journal of Medical Quality*, 28(5), 374–382. <https://www.doi.org/10.1177/1062860612474839>
- Van de Belt, T. H., Berben, S. A., Samsom, M., Engelen, L. J. & Schoonhoven, L. (2012). Use of Social Media by Western European Hospitals: Longitudinal Study. *Journal of Medical Internet Research*, 14(3), e61. <https://www.doi.org/10.2196/jmir.1992>
- Vanzetta, M., Vellone, E., Dal Molin, A., Rocco, G., De Marinis, M. G. & Rosaria, A. (2014). Communication with the public in the health-care system: A descriptive study of the use of social media in Local Health Authorities and public hospitals in Italy. *Annali Dell'Istituto Superiore Di Sanita*, 50(2), 163–170. <https://www.doi.org/10.4415/ANN-14-02-10>
- Wong, C. A., Ostapovich, G., Kramer-Golinkoff, E., Griffis, H., Asch, D. A. & Merchant, R. M. (2016). How U.S. children's hospitals use social media: A mixed methods study. *Healthcare*, 4(1), 15–21. <https://www.doi.org/10.1016/j.hjdsi.2015.12.004>
- World Bank (2018). *GNI per capita*. Retrieved from <https://data.worldbank.org/indicator/NY.GNP.PCAP.CD>
- XE (2020). *Tipos de cambio XE en tiempo real*. Retrieved from <https://www.xe.com/es/>