Use of Social Media by Spanish Hospitals: Perceptions, Difficulties, and Success Factors

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Abstract

This exploratory study has two aims: (1) to find out if and how social media (SM) applications are used by hospitals in Spain and (2) to assess hospital managers' perception of these applications in terms of their evaluation of them, reasons for use, success factors, and difficulties encountered during their implementation. A cross-sectional survey has been carried out using Spanish hospitals as the unit of analysis. Geographical differences in the use of SM were found. Social networks are used most often by larger hospitals (30% by medium-size, 28% by large-size). They are also more frequently used by public hospitals (19%, $p < 0.01$) than by private ones. Respondents with a negative perception of SM felt that there is a chance they may be abused by healthcare professionals, whereas those with a positive perception believed that they can be used to improve communication both within and outside the hospital. Reasons for the use of SM include the idea of maximizing exposure of the hospital. The results show that Spanish hospitals are only just beginning to use SM applications and that hospital type can influence their use. The perceptions, reasons for use, success factors, and difficulties encountered during the implementation of SM mean that it is very important for healthcare professionals to use SM correctly and adequately.

Key words: hospitals, information dissemination, Internet, social media, marketing of health services, public health

Background

The Web 2.0 boom has made concepts like interacting, sharing, collaborating, and including content an integral part of the Internet and has led to the development of a new form of social communication unheard of until a few years

ago.¹ These new concepts in the use of the World Wide Web have been made possible thanks to the development of social media (SM), a set of electronic tools, technologies, and applications that facilitate interactive communication, allowing users to take on new roles and even share and generate content.²

The healthcare sector, like many other areas of human knowledge and activity, has not been left out of this new concept of the Internet and the diverse ways in which SM applications can be used, so much so that we now talk about Medicine or Health 2.0, defined as the set of Web-based services and applications for healthcare consumers, caregivers, patients, health professionals, and biomedical researchers who use Web 2.0 technologies and/or semantic Web and virtual reality approaches to enable and facilitate specific social networks, participation, mediation, openness, and collaboration, within and between these user groups.

Although there have already been a great many articles written on the various links between the Internet and health,⁴⁻⁸ and specifically on the role that the Internet plays in transforming health-related communication,³ few studies have examined the use of SM applications by healthcare organizations. The few that have been carried out have found that the use of SM by hospitals in some countries has increased significantly over the last few years.⁹⁻¹¹ Other studies have explored the types of needs, knowledge, capacities, and recommendations required so that public health organizations can improve communication using SM applications,¹²⁻¹⁴ and one study even found that in 2010, 70% of healthcare organizations in the United States were planning to invest in the use of these applications.¹⁵ Furthermore, a recent market study found that 9 in 10 hospitals or health systems in the United States use SM to some extent, either through an active presence or just through monitoring them.¹⁶

Previous studies in other contexts suggest that hospitals have responded to the use of SM in different ways.^{9,10,16,17} Some show that they can be beneficial in terms of attracting new users, building community networks, and ensuring patient satisfaction.¹⁷ However, many discuss drawbacks when it comes to budgeting funds for SM-based strategies (only 8% do this) or employing professional staff specifically to manage those strategies on a full-time basis (just 7%).¹⁶ Furthermore, some people have reservations about using them as a result of concerns related to privacy and security (regarding source authorship, release of confidential information, and the risk of certain types of comments from patients, among others),¹⁸⁻²⁰ the real benefits that they represent for this sort of establishment, and possible legal and/or regulatory obstacles.¹⁹ Only one Spanish hospital has made public its policy on its presence in social networks: the Sant Joan de Deu Hospital in Barcelona.

With all these points in mind, this exploratory study has been carried out with two aims: (1) to find out if and how SM applications are used by hospitals in Spain, with a particular focus on the differences in usage in accordance with hospital size, whether they are public or private, or the autonomous region in which they are located and (2) to assess hospital managers' perception of these applications in terms of their reasons for use, success factors, and difficulties encountered during their implementation.

Materials and Methods

DESIGN

A two-phase cross-sectional study was designed specifically for the purposes of this research project. The unit of analysis used was Spanish hospitals in the country's 17 autonomous regions and 2 autonomous cities and listed in the National Hospitals Catalogue prepared by the Spanish Ministry of Health and Consumer Affairs in February 2010.

During the first phase of the study, data were gathered using online searches to find out how SM applications are used in all of the hospitals listed in the Catalogue ($n=804$). In the second phase, data were gathered using an online quantitative/qualitative survey based on the questionnaire developed by the American Public Health Association,²¹ aimed at a sample group of people in charge of hospital management, public relations (PR), information technology (IT), and/or administrative departments ($n=738$).

MEASUREMENTS

Phase 1. The following variables were analyzed: hospital size (small, less than 200 beds; medium, between 200 and 500 beds; large, more than 500 beds), public hospital (yes/no), autonomous region/city, Web site (yes/no), podcasting/YouTube channel (yes/no), podcasting type (news, academic/professional, advertising, none), social networks (yes/no), social network type (corporate, professional, users), for professionals (criticism, contact, leisure, none), for users (criticism, information, none), microblogging (yes/no), and blogs (yes/no).

Phase 2. This phase had two focuses: a quantitative one and a qualitative one.

For the quantitative analysis, the following variables were analyzed: hospital size (small, less than 200 beds; medium, between 200 and 500 beds; large, more than 500 beds), public hospital (yes/no), job title of respondent (manager/PR/IT/other), age, sex (male/female), knowledge of SM applications (no knowledge/knowledge and use/knowledge but does not use), perception of SM use (positive/negative), predicted use of SM (will expand soon/will expand slowly/will be limited), and current use of SM (yes/plans to/not interested).

For the qualitative analysis, the perceptions about the following dimensions were used as a reference: perception of use of SM by hospitals, reasons for not wanting to use SM applications, main reasons for using SM, difficulties in implementing SM, and success factors, broken down by job title and hospital type (private/public).

PROCEDURES

Aim 1. In February 2010, Internet searches were carried out using the Google and Google Blogs search engines and hospital names and wildcards as key words. The search engines incorporated into the various commercial tools studied (Facebook, YouTube, and Twitter) were also used. For Twitter, a temporary account with the user name @socialmediahosp (referring to the line of research on "Internet and Health" carried out at the Andalusian School of Public Health) was used in order to improve search results: by following the Twitter accounts of a number of hospitals, it was possible to find others that had not been detected in the initial search because abbreviations and acronyms are often used.

Aim 2. For the online survey, between October and November 2010, invitations to take part were sent using a Google Docs form to 738 hospitals with an e-mail address (some were found in the National Hospitals Catalogue, and others were requested over the phone). Two reminders were also sent: one 10 days after the first invitation and one 25 days afterward.

ANALYSIS

For the quantitative analysis, a descriptive univariate analysis using the frequencies found was carried out. In order to assess the differences between public and private hospitals, a bivariate analysis was carried out using the chi-squared test and quantitative analysis software SPSS version 15.0 (SPSS, Inc., Chicago, IL).

For the qualitative analysis, the different perceptions of the questionnaire respondents were analyzed to find out the relationship among perception, job title, and hospital type. The textual data were analyzed using the content analysis method and the constant comparison method (Grounded Theory). The IT tool Atlas-ti (ATLAS.ti Scientific Software Development GmbH, Berlin, Germany) was used to carry out the qualitative analysis of the textual data. The analysis process was carried out in the following stages: (1) all of the text was read, (2) the text was split into independently understandable segments, (3) initial open categories for each informative segment were defined (themes and focuses), (4) codes were classified and interrelated (construction of subcategories within the same code and constant comparison), (5) an overview or concept map of the results was created, (6) the results were cross-checked by the research team, adhering to strict criteria on the quality and confidentiality of qualitative research, and (7) the final results were written up, based on the segmentation criteria established and the internal composition of the results.

Results

PHASE 1: USE OF SM APPLICATIONS

Of the 804 hospitals studied, 49% are located in just three autonomous regions (26% in Catalonia, 13% in Andalusia, and 10% in Madrid), 72% are small, 18% are medium, and 9% are large, and most of them are private (56%).

As Table 1 shows, a little over half (52%) of the hospitals have their own Web site. The larger the hospital, the more likely it is to have a

Table 1. Use of the Internet and Social Media by Spanish Hospitals

VARIABLE	HOSPITAL SIZE				PUBLIC HOSPITAL		
	SMALL (N= 582)	MEDIUM (N= 146)	LARGE (N= 76)	P VALUE	YES (N= 351)	NO (N= 453)	P VALUE
Web site							
No	300 (51.5)	60 (41.1)	24 (46.2)	0.001	181 (51.6)	203 (44.8)	0.057
Yes	282 (48.5)	86 (58.9)	52 (68.4)		170 (48.4)	250 (55.2)	
Podcasts							
Channels							
No	571 (98.1)	142 (97.3)	72 (94.7)	0.001	345 (98.3)	440 (97.1)	
Yes	11 (1.9)	4 (2.7)	4 (5.3)		6 (1.7)	13 (2.9)	
Videos							
No	553 (95.0)	128 (87.7)	63 (82.9)	0.005	309 (88)	435 (96)	
Yes	29 (5.0)	18 (12.3)	13 (17.1)		42 (12)	18 (4)	
Social network							
No	534 (91.8)	102 (69.9)	55 (72.4)	0.750	281 (80.1)	410 (90.5)	
Yes	48 (8.2)	44 (30.1)	21 (27.6)		70 (19.9)	43 (9.5)	
Microblog							
No	574 (98.6)	146 (100.0)	74 (97.4)	0.440	349 (99.4)	445 (98.2)	0.129
Yes	8 (1.4)	0 (0.0)	2 (2.6)		2 (0.6)	8 (1.8)	
Blog							
No	569 (97.8)	145 (99.3)	72 (94.7)	0.004	338 (96.3)	448 (98.9)	0.013
Yes	13 (2.2)	1 (0.7)	4 (5.3)		13 (3.7)	5 (1.1)	
Data are number (%).							

Web site (48% of small, 59% of medium, and 68% of large). More private hospitals have Web sites than public ones ($p=0.05$).

Two percent ($n=19$) of the hospitals studied use podcasting channels, and the use of these increases as the size of the hospital increases (2% of small, 3% of medium, and 5% of large). The use of these channels is similar in both private and public hospitals (2% public, 3% private). Similarly, 7% of the hospitals studied have their own video podcasts. These are most frequently used in larger hospitals (17%) and public ones (12%) ($p=0.00$). The most common video types are news items/reports (4%) and advertisements (3%) (Table 2).

The most commonly used type of SM is the social network (14%), and these sites are used more frequently in larger hospitals (30% of medium, 28% of large) and in public ones (19%) ($p<0.0001$). The most commonly used type of social network is the professional/work-related site (17%), both in larger hospitals (22% of medium, 25% of large) and in public ones (17%).

With regard to microblogging tools, barely 1% of the hospitals studied were found to use these, and they are more popular in large hospitals (3%) and private ones (2%). Furthermore, 2% of all the

hospitals surveyed use blogs, and blogging is more common in small hospitals (2%) and public ones (4%) ($p=0.013$).

With regard to the companies that provide these applications, according to the survey results, Blogger (19.4%), Facebook, YouTube, Diario Médico, and Picasa (16.7% each) are the most commonly used services among the hospitals currently using an application. The least commonly used are Vimeo (not used by any hospitals), followed by Tuenti, Wordpress, Twitter, and Flickr (13.9% each). Public hospitals more frequently use Blogger and Diario Médico (19.2%).

Geographical differences in the use of SM were also found. The autonomous regions with the highest rates of SM usage in their hospitals are Madrid and the Balearic Islands with 52%, followed by Catalonia (34%) and Cantabria (33%). Ceuta and Melilla and La Rioja were found to have the lowest usage rates.

PHASE 2: ONLINE SURVEY

Description of the sample group. Of the hospitals that took part in the survey, 57.7% were public hospitals, and 9.2% were small, 20.5% were

medium, and 10.3% were large. Of the respondents, 60.3% were men, 47.4% were between 40 and 50 years of age, 28.2% were under 40 years of age, and 24.4% were over 50 years of age, 43.6% were directors or managers, and 25.6% worked in the PR department, 23.1% in the IT department, and 6.4% in other departments (customer service, training). Most of the responses came from Andalusia (24.4%), Catalonia (12.8%), and Galicia (9%), followed by Castile and León (7.7%), Castile La Mancha, Madrid, the Basque Country, and Murcia (6.4% each), the Canary Islands and Valencia (3.8%), Asturias and the Balearic Islands (2.6% each), and, finally, La Rioja, Navarre, and Extremadura (1.3% each). The total response rate was 11% ($n=78$) (Table 3).

Prior knowledge, perception, and predicted use of SM. Respondents were asked about their knowledge of SM. Of the sample group, 67.9% knew how to use the applications, 29.5% knew about some of them, and 2.6% did not know what they are for or how they are used. A small number (5.9%) of managers and directors said that they did not know what SM applications are used for, and

Table 2. Types of Videos and Social Networks Used by Hospitals

VARIABLE	HOSPITAL SIZE			PUBLIC HOSPITAL		
	SMALL (N= 582)	MEDIUM (N= 146)	LARGE (N= 76)	YES (N= 351)	NO (N= 453)	TOTAL (N= 804)
Podcast type						
News	16 (2.70)	10 (6.80)	6 (7.90)	22 (6.30)	10 (2.20)	32 (3.98)
Professional	2 (0.30)	3 (2.10)	2 (2.60)	4 (1.10)	3 (0.70)	7 (0.87)
Advertising	11 (1.90)	5 (3.40)	5 (6.60)	16 (4.60)	5 (1.10)	21 (2.61)
None	553 (95.00)	128 (87.70)	63 (82.90)	309 (88.00)	435 (96.00)	744 (92.54)
Social network type						
Corporate	13 (2.20)	6 (4.10)	1 (1.30)	5 (1.40)	15 (3.30)	25 (3.10)
Professional	27 (4.60)	32 (21.90)	19 (25.00)	58 (16.50)	20 (4.40)	136 (16.90)
Users	8 (1.40)	6 (4.10)	1 (1.30)	7 (2.00)	8 (1.80)	22 (2.70)
None	534 (91.80)	102 (69.90)	55 (72.40)	281 (80.10)	410 (90.50)	621 (77.20)
Corporate						
No	569 (97.80)	140 (95.90)	75 (98.70)	346 (98.60)	438 (96.70)	784 (97.50)
Yes	13 (2.20)	6 (4.10)	1 (1.30)	5 (1.40)	15 (3.30)	20 (2.50)
Professional/work						
Criticism	1 (0.20)	1 (0.70)	0 (0.00)	2 (0.60)	0 (0.00)	2 (0.20)
Contact	14 (2.40)	17 (11.60)	17 (22.40)	36 (10.30)	12 (2.60)	48 (6.00)
Leisure	12 (2.10)	14 (9.60)	2 (2.60)	20 (5.70)	8 (1.80)	28 (3.50)
None	555 (95.40)	114 (78.10)	57 (75.00)	293 (83.50)	433 (95.60)	726 (90.30)
Users						
Criticism	4 (0.70)	3 (2.10)	1 (1.30)	3 (0.90)	5 (1.10)	8 (1.00)
Information	4 (0.70)	3 (2.10)	0 (0.00)	4 (1.10)	3 (0.70)	7 (0.90)
None	574 (98.60)	140 (95.90)	75 (98.70)	344 (98.00)	445 (98.20)	789 (98.10)
Data are number (%).						

respondents from private hospitals more frequently stated that they not only knew what they are used for, but also that they use them themselves from time to time (75.8% versus 62.2% in public hospitals) (Table 4).

Regarding positive perception, 62.8% had such an attitude toward the use of this sort of application by hospitals, and the percentages were similar in both public (64.4%) and private (60.6%) hospitals. More respondents from small hospitals believed that the use of SM could have negative effects (35.2%), followed by those from medium ones (18.8%) and large ones (12.5%). More respondents from IT departments believed that the use of SM could have positive effects (66.7%), followed by managers and directors (64.7%), staff from the PR department (61.9%), and other departments (40%) (Table 4).

Regarding spread of usage, 39.7% believed that the expansion of SM applications in Spanish hospitals would be slow, whereas a little

under a third (32.1%) believed that it would be limited, and 28.2% believed that it would happen soon. More respondents from public hospitals thought that it would expand slowly (42.2%), whereas respondents from private hospitals thought that their use would increase quickly (33.3%). A larger proportion of respondents from large hospitals was inclined to believe that the use of SM applications would increase soon, in contrast with those from small hospitals, who tended to believe that it will increase slowly (42.6%) or that the increase will be limited (35.2%). Furthermore, the group most likely to believe that the use of SM would increase soon was the directors or managers (32.4%), followed by the PR department (28.6%), IT department (22.2%), and other departments (20%) (Table 4).

Predicted use of SM applications. Of the hospitals surveyed, 55.1% were not interested in the use of SM applications, whereas 34.6% planned to use them, and 10.4% already do. More respondents from private hospitals said that they were not interested in using SM than their public hospital counterparts (69.7% versus 44.4%), whereas more public hospitals planned to use SM applications in the future (42.2% versus 24.2% of private hospitals). More respondents from small and large hospitals said that they were not in-

terested in using SM (61.1% and 62.5%, respectively). More medium-sized hospitals, on the other hand, are planning to use SM (50% versus 31.5% of small hospitals and 25% of large hospitals) (Table 5).

QUALITATIVE FINDINGS

Perception of the use of SM by hospitals. Several different opinions about the use of these applications by hospitals were found, linked to the different profiles of the respondents in accordance with their job title and whether their hospital was public or private.

So, some directors and managers in both public and private hospitals had a negative perception of the use of SM because they were doubtful that they can really help staff and could also lead to time being wasted in working hours. But, others felt that they are positive because they can be used to interact with users and patients more

Table 3. Description of the Sample Group

PROFILE	HOSPITAL SIZE			PUBLIC HOSPITAL	
	SMALL (N= 54)	MEDIUM (N= 16)	LARGE (N= 8)	YES (N= 45)	NO (N= 33)
Sex					
Male	34 (63.0)	10 (62.5)	3 (37.5)	24 (53.3)	23 (69.7)
Female	20 (37.0)	6 (37.5)	5 (62.5)	21 (46.7)	10 (30.3)
Age range (years)					
Under 40	15 (27.8)	6 (37.5)	1 (12.5)	15 (33.3)	7 (21.2)
Between 40 and 50	23 (42.6)	9 (56.3)	5 (62.5)	21 (46.7)	16 (48.5)
Over 50	16 (29.6)	1 (6.3)	2 (25.0)	9 (20.0)	10 (30.3)
Job title/department					
Director/manager	25 (46.3)	6 (37.5)	3 (37.5)	20 (44.4)	14 (42.4)
PR	14 (25.9)	5 (31.3)	2 (25.0)	15 (33.3)	6 (18.2)
IT	11 (20.4)	5 (31.3)	2 (25.0)	8 (17.8)	10 (30.3)
Other (training, customer service)	4 (7.4)	0 (0.0)	1 (12.5)	2 (4.4)	3 (9.1)
Data are number (%).					

quickly, easily, and often, to get a better idea of their concerns and expectations. There is a feeling that SM applications lead to better knowledge exchange and management and that they increase transparency and improve the “digital reputation” of the hospital. Some respondents said that SM applications should only be used if the hospital and its staff can guarantee that data will be kept private and confidential and that the risk of comments from unsatisfied patients should be taken into account.

Some staff working in the PR departments of public hospitals saw the use of SM as negative because there could be problems with Spain's Data Protection Law, whereas others believed that they are not necessary because they already have internal tools like an intranet for staff use and a Web site for patients.

But, they also saw some positive points, like ease of communication and interaction, free of charge, giving patients (current and potential and by age group) better access to information, resulting in a sharing of needs and opinions. Some felt that SM could be used to guarantee that the information released is controlled by the hospital itself. SM applications also allow direct exchange between professionals at a sector level.

Staff from PR departments in private hospitals believed that these applications could be useful for corporate communication and for training and promotion of hospital events and can be more effective than traditional methods, boosting the hospital's position as a sector leader. However, some respondents mentioned negative points, believing that SM brings no added value to the management system or to processes or decision making. It could also be difficult to ensure

that these tools are used in such a way that confidentiality is not breached, and extra resources could be required. These views are shared by staff in the IT departments of public and private hospitals, and in public hospitals the use of SM would have to be approved by the Regional Ministries of Health.

Staff from other departments (training, customer service) in public hospitals saw the use of SM as negative because these applications could go against the recommendations of the Spanish Data Protection Law. They also believed that the decision to use these tools or not depends on the hospital's PR objectives, user type, and specialization. In some cases, a Web site is enough. Staff in the same roles in private hospitals believed that SM applications open up a new range of possibilities in terms of communications but stressed that they should only be used for professional purposes, something that they did not feel was true at the moment.

Reasons to use SM. Managers and directors in public hospitals believed that SM could be used to publish news items, maximize exposure, and promote specific services offered by the hospital. The same staff in private hospitals believed that the main reasons to use SM include educating users, creating discussion groups and collaborative work groups, and maximizing exposure.

For staff in the PR departments of public hospitals, the main reasons to use SM were to promote specific content, maximize exposure, and publish news items. Their counterparts in private hospitals believed that modernizing the hospital's image and e-reputation are particularly important reasons to use SM.

Reasons given by IT staff in public hospitals included the modernization of the hospital's image and e-reputation, whereas their counterparts in private hospitals focused on the creation of discussion groups and collaborative work spaces and promoting change in users' behavior.

Reasons not to use SM. For directors and managers in public hospitals, reasons not to use SM applications included the partial or complete lack of institutional support for greater use of SM, which means that internal hospital policies restrict their use. Data security and difficulties controlling the flow of information (spam, negative publicity) were also mentioned as reasons not to use SM. Directors and managers in private hospitals gave the same reasons as their counterparts in public hospitals but added that users are not currently interested in these tools.

For staff in the PR departments of public and private hospitals, the main reasons not to use SM included difficulties controlling them, data security, and the restrictive internal policies of the hospitals.

For staff in the IT departments of public hospitals, the main reasons not to use SM included difficulties controlling them because of spam and negative publicity, as well as data security. Their counterparts in private hospitals also felt that SM applications are of little use for their communications strategy.

Success factors. The main success factors identified by directors and managers in public hospitals included the need for creative ways

Table 4. Knowledge, Perception, and Views About the Use of Social Media Applications, by Hospital Size and Type

VARIABLE	HOSPITAL SIZE			PUBLIC HOSPITAL		
	SMALL (N= 54)	MEDIUM (N= 16)	LARGE (N= 8)	YES (N= 45)	NO (N= 33)	TOTAL (N= 78)
Knowledge of SM applications						
Does not know what they are for	1 (1.9)	0 (0.0)	1 (12.5)	1 (2.2)	1 (3.0)	2 (2.6)
Knows what some applications are used for	18 (33.3)	4 (25.0)	1 (12.5)	16 (35.6)	7 (21.2)	23 (29.5)
Knows the applications	35 (64.8)	12 (75.0)	6 (75.0)	28 (62.2)	25 (75.8)	53 (67.9)
Perception of the use of SM applications						
Positive	31 (57.4)	11 (68.8)	7 (87.5)	29 (64.4)	20 (60.6)	49 (62.8)
Negative	19 (35.2)	3 (18.8)	1 (12.5)	11 (24.4)	12 (36.4)	23 (29.5)
Beliefs about spread of SM use						
Will expand soon	12 (22.2)	6 (37.5)	4 (50.0)	11 (24.4)	11 (33.3)	22 (28.2)
Will expand slowly	23 (42.6)	6 (37.5)	2 (25.0)	19 (42.2)	12 (36.4)	31 (39.7)
Will be limited	19 (35.2)	4 (25.0)	2 (25.0)	15 (33.3)	10 (30.3)	25 (32.1)
Current use of SM applications						
Yes	4 (7.4)	3 (18.8)	1 (12.5)	6 (13.3)	2 (6.1)	8 (10.3)
Plans to do so	17 (31.5)	8 (50.0)	2 (25.0)	19 (42.2)	8 (24.2)	27 (34.6)
Not interested	33 (61.1)	5 (31.3)	5 (62.5)	20 (44.4)	23 (69.7)	43 (55.1)
Data are number (%). SM, social media.						

of keeping users interested and the availability of time and staff to develop the media and keep them up-to-date. In addition to these factors, the same staff at private hospitals believed that a good understanding of users' needs is another important factor.

Staff in PR departments of public and private hospitals believed that the main success factors are the availability of time and human resources, the use of creative ways to maintain interest, and good adaptation to Web 2.0 functions.

For IT staff in public hospitals, the key success factors are the quality of content of posts/messages and a large number of topics for discussion, as well as the availability of the time and human resources required to develop and maintain the SM applications. In addition to these factors, the same staff at private hospitals believed that the use of creative ways in which to keep users interested is another important factor.

Difficulties. Directors and managers at both public and private hospitals felt that the main difficulties faced are staff's lack of time, the lack of an organizational culture for the use of these applications, problems with privacy and data security, and the lack of capacities or training.

Staff in the PR departments of public hospitals believed that the main difficulties are the staff's lack of time and the fact that the use of SM is a low priority for management, whereas their counterparts in private hospitals added that it is difficult to assess the benefits of SM use.

For IT staff at public hospitals, the low priority given to SM is one of the key difficulties faced, whereas the same staff in private hospitals mention the staff's lack of time and the lack of an organizational culture.

Discussion

The results of this study allow us to take the first step toward understanding the factors affecting hospitals' use of the Internet and SM applications. There were several constraints related to the search strategy used because it was based on the names of each hospital, and in many cases abbreviations or acronyms may be used, or several hospitals could belong to the same consortium or association. Furthermore, in many cases it was impossible to confirm authorship of the sites, podcasts, social networks, microblogs, or blogs, as the name or names of authors did not appear. With regard to the survey, some problems were encountered when trying to find the hospitals' e-mail addresses, and when invitations and reminders were sent some e-mail addresses were incorrect or the messages bounced back.

One of the limitations of the study is the dynamic feature of the information contained in the Web, as well as the participation through the tools of the social Web. Over time, the Web sites and health center policies on the use of SM will be changing depending on their barriers, opportunities, skills, perceptions, or success factors. For this reason, this article should be analyzed as a "radiograph" of the situation at a particular time instant, in which SM tools were beginning to be used in health centers.

The fact that a high percentage of hospitals do not even have their own Web site shows that the use of information and communications technologies is still limited, and this could limit the potential development of SM applications in Spain. However, one positive factor for the future implementation of SM was found: the survey respondents knew what SM applications are used for and have a positive perception of their use in both public and private hospitals. In addition, because a large proportion of directors and managers believed that the use of SM will increase soon, it is important to keep an eye on possible interventions planned in these departments. Furthermore, the results show that managers and directors, as well as staff in both IT and PR departments, have a good knowledge of the benefits of the

Table 5. Planned Use of Social Media Applications by Hospital Size and Type

VARIABLE	HOSPITAL SIZE			PUBLIC HOSPITAL		
	SMALL (N= 50)	MEDIUM (N= 13)	LARGE (N= 7)	YES (N= 39)	NO (N= 31)	TOTAL (N= 70)
Social networks (Facebook)						
Plans to use	36 (72.0)	13 (100.0)	6 (85.7)	29 (74.4)	26 (83.9)	55 (78.6)
Does not plan to use	14 (28.0)	0 (0.0)	1 (14.3)	10 (25.6)	5 (16.1)	15 (21.4)
Microblogging (Twitter)						
Plans to use	44 (88.0)	11 (84.6)	7 (100.0)	35 (89.7)	27 (87.1)	62 (88.6)
Does not plan to use	6 (12.0)	2 (15.4)	0 (0.0)	4 (10.3)	4 (12.9)	8 (11.4)
Podcasting (YouTube)						
Plans to use	47 (94.0)	11 (84.6)	6 (85.7)	34 (87.2)	30 (96.8)	64 (91.4)
Does not plan to use	3 (6.0)	2 (15.4)	1 (14.3)	5 (12.8)	1 (3.2)	6 (8.6)
Blogs (Diario Médico, Blogger, wordpress)						
Plans to use	45 (90.0)	9 (69.2)	4 (57.1)	31 (79.5)	27 (87.1)	58 (82.9)
Does not plan to use	5 (10.0)	4 (30.8)	3 (42.9)	8 (20.5)	4 (12.9)	12 (17.1)
Photosharing (Flickr, Picasa)						
Plans to use	43 (86.0)	11 (84.6)	5 (71.4)	33 (84.6)	26 (83.9)	59 (84.3)
Does not plan to use	7 (14.0)	2 (15.4)	2 (28.6)	6 (15.4)	5 (16.1)	11 (15.7)
Data are number (%).						

use of SM, providing useful information about the use of these applications to improve knowledge management and transparency and the need for a communications strategy incorporating SM.

It is important to note that public hospitals seem to be a few steps ahead of private ones in terms of their plans to use SM, and smaller hospitals tend to view the use of SM in a more negative light. Both of these points should be analyzed in more detail. The negative perceptions of the different staff profiles mean that care should be taken with aspects linked to privacy, confidentiality, data security, data management, and the legislation involved.

With regard to social networks, although the results of this study show that they are the most commonly used SM tool, their usage rate is still quite modest given that, over the last 5 years, the overall use of social networking sites has more than quadrupled,²² and Spain is the country with the second-highest usage figures worldwide of the social network studied (Facebook). This brings us to the debate about the usefulness of social networking sites for the healthcare sector, as some authors believe that social networks can improve the perception of social support and interconnections between people,^{23,24} and others have found that the increase in the amount of user-generated content is seen as a more democratic, patient-controlled way of exchanging information²¹ and that social networks can have positive effects on health initiatives like smoking cessation or weight loss programs.^{1,20}

The findings of this survey show that promoting changes in behavior is not a very important motivation behind the use of SM applications by hospitals. This study has highlighted that the motivations behind SM use are mainly linked to the publication of news items, maximizing exposure and modernizing the hospital's image. However, it is interesting that it is the managers, directors, and IT staff in private hospitals who focus on objectives related to educating users and creating discussion or collaborative work groups, uses typical of what can be referred to as Health 2.0.³

The debate also includes possible indirect negative or unwanted effects of the use of SM, as the participative nature of these networks means that they are an open forum for the exchange of information, and this increases the chance that the information can be disseminated widely, perhaps even incorrectly,^{25,26} although studies have shown that mistakes or incorrect information are corrected much more quickly on social networking sites than on more traditional sites.²⁷

As the results of this study show, the use of some applications means that SM has become a means of providing information to users as well as of collecting criticism about hospital management. The drawbacks of the use of SM by hospitals mentioned by respondents include

doubts about whether they comply with legislation set out in Spain's Data Protection Law, as well as data security and difficulties controlling SM due to possible spam and/or negative publicity, arguments that fuel concerns about the use of this information.

Healthcare professionals, particularly resident doctors, are the ones who use these tools most frequently, in order to build up contacts and for recreational purposes. Some studies show that the use of SM tools leads to better collaboration between professionals^{28,29} and can be of benefit for the training of some student groups.³⁰ The significant difference in the use of social networks in public and private hospitals points to the need for a more in-depth study to ascertain the reasons for that disparity.

Although podcasts and podcasting channels are not used very much in Spain, in the United States they represented 22% of SM applications used in the study period,⁹ and they have proved to be very useful for large public hospitals, as the news items and advertisements uploaded by the hospitals themselves or by other institutions or people have helped promote their activities and services. However, YouTube is the third application that hospitals in Spain plan to use. The potential of podcasts for training in the healthcare sector has been examined in another study,³¹ which found applications were being used to record lectures or classes that medical students could not attend in person or that they could watch when walking or traveling, for example.

In the United States, the application used the most in the study period was microblogging, representing 41%.⁹ This is very different from Spanish hospitals. This shows that this tool type is not being used to its full potential, as SM could be used for educational podcasts, news items, and blogs by medical staff and managers, where users can find out about lots of different medicine-related topics and get addresses and information about hospital events, and they can even be used by staff for internal discussions.¹⁰ Another interesting result of this survey is that although Twitter is not used very much, it is the fourth SM application that hospitals would consider using. This should be taken into account for future studies monitoring SM use.

As various studies have shown,^{31–33} blogs are largely responsible for the annual increase in the number of new Web sites, and the key advantages of using blogs include the ease of content management and the ability of readers to post their own comments, promoting collaboration. The results of this study show that they are hardly used by Spanish hospitals, a finding consistent with that of studies of hospitals in the United States.⁹

The availability of time and human resources can be both a success factor and a difficulty, so it is important to carry out in-depth evaluations of the current capacities of each hospital, taking into account its communications strategies, its size, and whether it is public or private. Another key aspect here is how important respondents felt organizational culture, low priority, and restrictions put in place by some Regional Ministries of Health were when it comes to difficulties implementing SM in their hospitals.

For future studies, is important to investigate how SM could lead to improved healthcare in hospitals. Also, it would be interesting to carry out a longitudinal study to review the change of these perceptions, difficulties, success factors, and the use of SM by Spanish hospitals over time. It would be interesting to analyze the aspects brought to light in the results of this study in more detail and to identify good practices in the use of SM by hospitals.

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