

Use of social media in the Department of Radiology at Johns Hopkins Aramco Healthcare in Saudi Arabia

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Purpose: The objective of this study was to evaluate the use of social media in the Radiology Department at Johns Hopkins Aramco Healthcare in Saudi Arabia.

Methods: The research was a cross-sectional study in which 90 workers from the staff personnel of the Radiology Department at Johns Hopkins Aramco Healthcare were invited to a web-based survey using Google Forms. Fifty-seven participants responded to the survey (63%). Basic descriptive statistics were used to analyze the responses.

Results: More than half of the participants (54.8%) were technologists. The majority of the respondents (61.4%) had a Bachelor's degree, and 50.8% of them had more than 10 years of experience. Also, 36.8% of the participants were between 30 and 40 years old, and 57.9% of them were males. Similarly, most of the participants (61.4%) were from Saudi Arabia. Additionally, the most frequently used application was WhatsApp (59.6%). Likewise, almost half of the participants (47.4%) managed social media multiple times a day and more than half of them used these tools to communicate with friends (68.4%) and family members (61.4%). As well, 12% of the respondents employed these media to study and 20% used them for professional reasons. Also, 38.6% of respondents had no barriers to use social media. However, the rest considered that time, private matters, negative replies, lack of information and experience, and uncertainty about the usefulness of social media were barriers.

Conclusion: According to the survey, most of the personnel of the Radiology Department at Johns Hopkins Aramco Healthcare often used WhatsApp to communicate with family (61.4%) and friends (68.4%), and less than half of them employed these tools for educational purposes (21.1%) and professional issues (35.1%). Additionally, participants considered that there were some barriers related to the use of these tools.

Keywords: radiology department, social media use, Saudi Arabia, survey

Introduction

Currently, the use of social media and networks has spread throughout the planet, influencing in a decisive way the communication and distribution of information among all human beings.¹ This influence has transcended the field of medicine, facilitating interaction between patients, family members, and health professionals.¹⁻³ In this sense, it is worth mentioning that the most used technological platforms in the field of healthcare are Facebook, YouTube, WhatsApp, Instagram, Twitter, LinkedIn, and others.^{2,3}

Regarding the global impact of social media, by July 2018, Facebook had around 2,200 million users worldwide, YouTube 1,900 million, WhatsApp 1,500 million, Instagram 1,000 million, Twitter 336 million, LinkedIn 294 million, Pinterest 200 million,

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and Telegram more than 200 million.⁴ As for Saudi Arabia, by 2017, the penetration percentages of the mentioned social media were as follows: WhatsApp (73%), YouTube (71%), Facebook (66%), Instagram (54%), Twitter (52%), LinkedIn (24%), Pinterest (24%), and Telegram (16%).⁵

Now, in relation to the interaction between radiology and social media, a recently published article considered the need to use new social media technologies for radiology medical education.³ The article recounted the utilization of some social media platforms such as Twitter, Instagram, Facebook, and other social networks in the medical education of patients and their families. It also showed some limitations of social media such as the quality and accuracy of the information transmitted, the possible rupture of patient privacy, and the technological limitations of social media.

In addition to education, social media can contribute to the professional and scientific development of radiologists, and facilitate the interaction and communication of these professionals with the community in general, including other radiologists and physicians of different specialties, patients and relatives, students, radiological societies and suppliers, and industries linked to radiology; these global exchange alternatives can be achieved thanks to the recent technological advances.⁶ Also, radiological consultations and remote transmission of anatomical images are favored with the combination of social networks and the Internet. During this process of communicational interaction, professional ethics and patient confidentiality must be preserved.⁶

The importance of the use of social media in the field of radiology was also emphasized in a recent article.⁷ This work describes the new and different alternatives offered by social media to radiologists, patients, students, other professionals, hospitals, and health service providers. The author considers that social media are useful for education, teaching, training, and facilitate communication and interaction between radiologists and patients, and between radiologists and other health professionals. It also raises the need to maintain an ethical professional behavior, to protect the privacy of patients and avoid political and religious controversies. Similarly, some papers indicate that social media platforms offer novel alternatives to improve applications in radiology and other fields of medicine.⁸⁻¹³

In relation to the use of social media in private radiology groups and in the radiology academic departments of the United States, a study shows that Facebook is the most used social media.¹⁴ Also, other research reveals that Twitter is used

preferentially in several radiology departments in the United States for promotional and educational reasons.¹⁵

Likewise, a survey conducted with the intention of exploring the perception of social media among radiology professionals found that ~59% of those surveyed use these social media for professional purposes.¹⁷ Another study indicates that Facebook could be useful for radiologists to exchange professional information on different topics such as images.¹⁸

Similarly, another survey conducted among a group of radiologists from the United States and Europe indicates that 85% of respondents use social media for professional and private reasons. According to this survey, LinkedIn and Twitter platforms are the most employed for professional applications, while Facebook is used for general purposes.¹⁹ In another context, due to insecurity in the protection of information transmitted through social media, some authors offer practical alternatives to protect the security and privacy of radiological information transmitted through social media.²⁰

Beyond the field of radiology, social media websites have also been used in diverse areas of health care as a tool in the awareness, prevention, management, and treatment of cancer, diabetes, and HIV, among other diseases.²¹⁻²⁵ Similarly, these tools have been utilized for different purposes in urology, plastic surgery, pathological dermatology, cardiology, surgical practice, and other areas of medical health care.²⁶⁻³⁰ Also, social media platforms have been employed to improve the education and professional development of doctors, for care and education of patients, and to facilitate the interaction and communication among health professionals, patients, family, and communities.³¹⁻³⁴ In addition, it is pertinent to point out that in these applications physicians and patients have concerns and dilemmas about the ethical and legal issues related to the use of social media.^{27,31,35,36}

Even though social media represents an alternative to improve the education of radiology and other fields of medicine, these technologies have not been used extensively for this purpose on a world scale; only in the United States and other advanced countries have some efforts been made in this regard.¹⁶

In Saudi Arabia, despite the advances observed in other countries about the interrelation between social media and radiology, no research has been carried out on this subject. In this sense, the intention of this research was to conduct a survey to evaluate the use of social media by the staff personnel of the Radiology Department at Johns Hopkins Aramco Healthcare in Saudi Arabia.

Materials and methods

Study settings and participants

In order to evaluate the use of social media by the personnel of the Radiology Department at Johns Hopkins Aramco Healthcare in Saudi Arabia, a survey designed by the research team at Dammam University and at Johns Hopkins Aramco Healthcare was carried out.³⁸ Out of 90 participants from Johns Hopkins Aramco Healthcare, 57 responded to the survey (63%). The completion of the questionnaire was considered to imply informed consent to participate in the study, and the ethical approval was obtained from the Institutional Review Board of the Iman Abdulrahman Bin Faisal University.

Data collection

The data collection was done through an electronic survey of ten questions created through Google Forms.³⁸ The survey was mostly a multiple choice format with some essay questions.

Description of the survey

The questionnaire consisted of ten questions: six questions related to the demographic information: age, gender, nationality, education level, job title, and years of experience in radiology. The remaining four questions were associated with the use of social media: 1) type of social media used: Skype, YouTube, Pinterest, Google+, Instagram, Facebook, Twitter, LinkedIn; 2) frequency of the use of social media: I have it open all day long, multiple times a day, daily, weekly, monthly; I have an account but I never use it, I don't have an account; 3) reasons to use social media: personal reasons, communication with friends, communication with family, professional purposes, study purposes, and; 4) barriers to use social media: I have no barriers, time, lack of expertise in how to implement it, privacy issues, lack of relevant information, concern about negative response, uncertain about usefulness of social media, lack of interest in engaging with others online.

Sampling

The survey was distributed by means of a link to the target population through the WhatsApp group, and the data were collected during 1 month. During this period, three group reminders were sent to all selected participants to complete the survey. The number of cell phones of most of the respondents involved in the survey was obtained through information provided by Johns Hopkins Aramco Healthcare.

Inclusion and exclusion criteria

The inclusion criterion was male and female personnel from the Radiology Department at Johns Hopkins Aramco Healthcare in Saudi Arabia. The exclusion criterion was male and female personnel who are not from the Radiology Department at Johns Hopkins Aramco Healthcare in Saudi Arabia.

Statistical analysis

The survey data were processed using basic statistics tools, and the answers were presented in terms of percentages relative to the total number of participants. Also, we estimated the mean, the median, and the SD of the survey results using a code system.

Results

The survey was designed to obtain information about the use of social media by the staff personnel of the Radiology Department at Johns Hopkins Aramco Healthcare in Saudi Arabia.

In Table 1, the demographic information of the surveyed participants is shown. This table displays the work activities of the radiology department personnel, the educational level, the age, gender, the work experience, and the nationality of the participants. According to the table, the respondents had different levels of study and the work experience ranged from <1 year to >10 years. Most of them were under 50 years of age, and more than 50% of participants were from Saudi Arabia.

Likewise, Tables 2–6 show the participant responses in relation to the use of social media. Table 2 presents the social media applications in which respondents had an account on the listed social media site in the following decreasing order: WhatsApp, YouTube, Instagram, Twitter and Google+, Facebook, LinkedIn, and Skype and Pinterest.

Similarly, Table 3 points out that the most frequently used social media in decreasing order were WhatsApp, Facebook, Google+, LinkedIn, YouTube, Skype, Pinterest, Instagram, and Twitter.

Table 4 displays the frequency of the use of social media and shows that some participants employed social media multiple times a day, while others utilized them all day long, daily, or weekly. A small percentage of respondents did not use social media.

Table 5 illustrates that social media was used to communicate with friends, family, for professional purposes, studies, and other reasons.

Finally, Table 6 indicates that 38.6% of the participants did not have barriers to utilize social media. Seven percent of them

Table 1 Demographic information of respondents

	n	%
Work activities		
Technologists	31	54.4
Receptionists	5	8.8
Radiologists	3	5.3
Technicians	2	3.5
Radiology nurses	2	3.5
Radiation safety officer	1	1.8
PACS administrator	1	1.8
Other	12	21.1
Mean	3.11	
Median	1	
SD	2.88	
Education		
Bachelor's degree	35	61.4
Diploma's degree	14	24.6
Master's degree	3	5.3
Other degrees	5	8.8
Mean	1.61	
Median	1	
SD	0.94	
Age		
20–30 years	14	24.6
30–40 years	21	36.8
40–50 years	13	22.8
Above 50 years	9	15.8
Mean	2.30	
Median	2	
SD	1.02	
Gender		
Male	33	57.9
Female	24	42.1
Mean	1.42	
Median	1	
SD	0.50	
Experience		
More than 10 years	29	50.8
5–10 years	11	19.3
2–5 years	3	5.3
Up to 2 years	7	12.3
<1 year	7	12.3
Mean	3.84	
Median	5	
SD	1.47	
Nationality		
Saudi	35	61.4
Non-Saudi	22	38.6
Mean	1.39	
Median	1	
SD	0.49	

Abbreviation: PACS, picture archiving and communication system.

did not have interest in using social media. However, the rest of the respondents pointed out that time, private issues, concern about negative answers, lack of information, lack of experience, and uncertainty about the usefulness of social media were barriers that prevented them from using social media.

Table 2 Social media registered by respondents

Social media	n	%
WhatsApp	49	86
YouTube	38	66.7
Instagram	29	50
Twitter and Google+	32	40.4
Facebook	21	36.8
LinkedIn and Skype	13	22.8
Pinterest	11	19.3
Mean	3.07	
Median	3	
SD	1.83	

Table 3 The most frequently used social media

Social media	n	%
WhatsApp	34	59.6
Facebook	6	10.5
Google+	5	8.8
LinkedIn	5	8.8
YouTube	4	7
Skype	3	5.3
Pinterest		
Instagram		
Twitter		
Mean	2.09	
Median	1	
SD	1.60	

Table 4 Frequency of use of social media

Frequency	n	%
Multiple times a day	27	47.4
Open all day long	12	21.1
Daily	12	21.1
Weekly	3	5.3
I have an account but I never use it	2	3.6
I don't have any account	1	1.8
Mean	2.02	
Median	2	
SD	1.23	

Discussion

The results of this research related to the use of social media in the Radiology Department at Johns Hopkins Aramco Healthcare in Saudi Arabia showed, according to Table 1, that 54.4% of the participants were technologists, 5.3% radiologists, 3.5% technicians, 1.8% official safety of radiation, 1.8 PACS administrator, 8.8% receptionists, 3.5% radiology nurses, and 21.1% were other personnel. In general, the participants cover the different work areas of the surveyed radiology department.³⁷ As can be seen from the results, we detected that more than half of the respondents were technologists.

Table 5 Reasons to use social media

Reasons	n	%
Communication with friends	39	68.4
Communication with family	35	61.4
Professional matters	20	35.1
For study	12	21.1
Other reasons	29	49.1
Mean	2.65	
Median	2	
SD	1.52	

Table 6 Barriers to use social media

Barriers	n	%
No barriers	22	38.6
Time	20	35.1
Privacy issues	18	31.6
No interest	7	12.3
Other barriers: concern about negative response, lack of relevant information, uncertainty about usefulness of social media, lack of experience	11	19.4
Mean	2.54	
Median	2	
SD	1.36	

In the same way, Table 1 presents the educational level of the participating personnel and showed that the majority had a Bachelor's degree (61.4%). The rest of the participants had other degrees of study. With regard to the age of the respondents, we see that the highest percentage of them (36.8%) were between 30 and 40 years old; this is the average age of professional radiologists.³⁷ Also, more than half of the participants (57.9%) were males. Similarly, Table 1 indicates that the highest proportion of graduates had more than 10 years of work experience (50.8%). In addition, this table shows the nationality of the participants, and we observed that 61.4% were from Saudi Arabia and the rest are non-Saudis.

Regarding the use of social media by the respondents, Table 2 shows that the majority of the surveyed personnel (86%) had a WhatsApp account, which is expected because it is the most frequently used social media application in Saudi Arabia, especially among young adults.⁵ The ease of use contributes to its popularity. Second, 66.7% of respondents had an account on YouTube because it is easy to operate and serves to watch videos and get information about many topics. Then, in sequential order the other social media platforms were as follows: Instagram (50%), Twitter and Google+ (40.4%), Facebook (36.8%), LinkedIn and Skype (22.8), and Pinterest (19.3%).

Also, Table 3 indicates that the most frequently used social media by the participants was WhatsApp (59.6%). This confirms the findings presented in Table 2. The observed trend in the use of social media by respondents broadly coincides with the statistical projections of the use of social media in Saudi Arabia.⁵ As a comparison, one study reported that in the United States and Europe, the platforms most commonly used by radiologists were Facebook, LinkedIn, and Twitter.¹⁹

According to Table 4, almost half of the participants (47.4%) used social media multiple times a day, 21.1% keep communications open all day long, and 21.1% used them daily. The rest handled these tools weekly (5.26%), or they had accounts that they never used (3.51%), or they did not have accounts (1.75%). It follows that the majority of respondents employed social media frequently. These results are similar to those reported in a survey conducted on radiologists in the United States and Europe.¹⁹

The reasons for using social media are described in Table 5. Here, we observed how more than half of the respondents utilized social media to communicate with friends (68.4%) or talk to their families (61.4%). Twelve percent of them employed these media for study and 20% for professional reasons. Likewise, 29% used these tools for other reasons. The results showed that the applications of social media for professional purposes and study were low compared to the use as a system of communication with friends and family. In contrast, in advanced countries, the percentage of use related to the professional training of radiologists was found to be higher.^{17,19} In this sense, a survey showed that in the United States, 41% of radiologists employed social media for professional purposes; while, in Europe, 35% of radiologists utilized these tools for professional purposes.¹⁹ Similarly, 82% of radiologists in the United States and Europe used social media for educational purposes.¹⁹ In another survey conducted in the United States, 59% of radiologists employed social media for professional issues.¹⁷

The barriers to use social media are presented in Table 6. Survey data indicated that 38.6% of the respondents had no barriers in utilizing social media. About 35.1% of the participants considered that lack of time was a barrier. Also, 31.6% thought that private issues were a barrier. Seven percent had no interest in using social media. And, 11% of the surveyed personnel considered as barriers the concern about negative responses, lack of information, lack of experience, and uncertainty about the usefulness of social media. Some of these barriers, such as time and lack of information, were also presented by radiologists from the United States and Europe.¹⁹

The results of Tables 5 and 6 suggest the need to implement training educational projects so that the personnel of radiology departments can know the potential benefits that social media and new communication technologies bring to the educational and professional development of their careers.^{6,7,31–34}

The main limitation of this research was the size of the sample, because only 57 participants were surveyed from a group of 90 workers from a radiology department from a single hospital in Saudi Arabia. Also, another limitation is that the survey was self-reported. In fact, this research is an exploratory study and the results are not intended to be generalized to all members of the radiology departments in Saudi Arabia. Future studies in this area may be aimed at surveying professionals in the radiological departments of different hospitals, clinics, and universities in the Kingdom of Saudi Arabia.

Conclusion

This study provides a snapshot of the use of social media by the staff of the Radiology Department at Johns Hopkins Aramco Healthcare in Saudi Arabia. According to the survey, WhatsApp was the most used social media by the participants. Also, more than half of the participants used social media to communicate with their friends (68.4%) and family members (61.4%), and less than half of them employed these tools for educational purposes (21.1%) and professional issues (35.1%). Additionally, participants considered that there were some barriers to the use of these technologies, such as time, private problems, lack of experience, and lack of information. In this sense, it is necessary to develop programs aimed at raising awareness and increasing the use of social networks for educational and professional purposes in the personnel of the Radiology Department at the Johns Hopkins Aramco Healthcare in Saudi Arabia. Also, it is convenient to highlight that this was the first study conducted on the use of social networks in the radiology departments of the Kingdom of Saudi Arabia.

Disclosure

The authors report no conflicts of interest in this work.

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