Internet and social media usage of orthopaedic patients: A questionnaire-based survey

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Author contributions: All authors contributed to this manuscript.

Conflict-of-interest statement: There are no conflicts of interest.

Data sharing statement: No further data are available.

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Manuscript source: Unsolicited manuscript

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Received: July 21, 2016
Peer-review started: July 26, 2016
First decision: October 21, 2016
Revised: October 23, 2016
Accepted: November 16, 2016
Article in press: November 18, 2016
Published online: February 18, 2017

Abstract

AIM
To evaluate social media usage of orthopaedic patients to search for solutions to their health problems.

METHODS
The study data were collected using face-to-face questionnaire with randomly selected 1890 patients aged over 18 years who had been admitted to the orthopaedic clinics in different cities and provinces across Turkey. The questionnaire consists of a total of 16 questions pertaining to internet and social media usage and demographics of patients, patients’ choice of institution for treatment, patient complaints on admission, online hospital and physician ratings, communication between the patient and the physician and its effects.

RESULTS
It was found that 34.2% (n = 647) of the participants consulted with an orthopaedist using the internet and 48.7% (n = 315) of them preferred websites that allow users to ask questions to a physician. Of all question-askers, 48.5% (n = 314) reported having found the answers helpful. Based on the educational level of the participants, there was a highly significant difference between the rates of asking questions to an orthopaedist.
using the internet ($P = 0.001$). The rate of question-asking was significantly lower in patients with an elementary education than that in those with secondary, high school and undergraduate education ($P = 0.001$). The rate of reporting that the answers given was helpful was significantly higher in participants with an undergraduate degree compared to those who were illiterate, those with primary, elementary or high school education ($P = 0.001$). It was also found that the usage of the internet for health problems was higher among managers-qualified participants than unemployed-housewives, workers-intermediate staff ($P < 0.05$).

**CONCLUSION**

We concluded that patients have been increasingly using the internet and social media to select a specific physician or to seek solution to their health problems in an effective way. Even though the internet and social media offer beneficial effects for physicians or patients, there is still much obscurity regarding their harms and further studies are warranted for necessary arrangements to be made.

**Key words:** Patient; Internet; Orthopedist; Social media; Communication

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Core tip: There is an ongoing increase in the use of social media and internet for health information. Patients can share their health-related experiences or issues online via social media and discussion forums or can consult with experienced physicians. Despite benefits and advantages of social media for patient-physician relationship, legal liability and possible harms and risks of the shared information and communication should be born in mind.

Duymus TM, Karadeniz H, Çaçan MA, Kömür B, Demirtaş A, Zehir S, Azboy İ. Internet and social media usage of orthopaedic patients: A questionnaire-based survey. *World J Orthop* 2017; 8(2): 178-186. Available from: URL: http://www.wjgnet.com/2218-5836/full/v8/i2/178.htm DOI: http://dx.doi.org/10.5312/wjo.v8.i2.178

**INTRODUCTION**

The effects of patient-physician communication through social media or internet have long been of interest. Facebook, Twitter, My Space and LinkedIn have been reported to be the most commonly used social networking sites around the world, being Facebook the most popular, whose use has increased rapidly in recent years. Social media tools enable patients to share their health-related experiences or issues online via social media and discussion forums or can consult with experienced physicians. Despite the benefits and advantages of social media for patient-physician relationship, legal liability and possible harms and risks of the shared information and communication should be born in mind.

**MATERIALS AND METHODS**

A face-to-face questionnaire with a total of randomly selected 1890 patients aged over 18 years who were admitted to the orthopaedic clinics of private and public hospitals in different regions of Turkey between January 2016 and March 2016 was conducted. The participants were informed about the content and purpose of the questionnaire and were asked to fill in the questionnaire. Patients’ identity information was not included in the questionnaire and each questionnaire was numbered. All data were collected and analyzed. Participants received no financial or educational incentive. The questionnaire consisted of a total of 16 questions pertaining to patients’ personal information (age, sex, educational level, occupation), the healthcare institution the questionnaire was conducted, patients’ complaints on admission, duration of complaints, the effects of the internet and social media on the questionnaire. The effects of social media and internet on patients’ choice of hospital and physician and patient-physician communication are warranted for necessary arrangements to be made.

**Statistical analysis**

Statistical analysis was performed using NCSS (Number Cruncher Statistical System) 2007 (Kaysville, Utah, United States). Data were analyzed using descriptive statistics (mean, standard deviation, median, frequency, rate, minimum, maximum) whereas qualitative data were compared using the Pearson $\chi^2$ test, Fisher Freeman Halton test and ‘Yates’ continuity correction test (Yates corrected $\chi^2$). $P$ values of < 0.01 and 0.05 were considered statistically significant.

**RESULTS**

Of all participants, 52% ($n = 982$) were females and 48% ($n = 908$) were males. The mean age of the
participants was 40.64 ± 15.35 years (18-88 years) (Table 2).

The rate of the effect of internet on participants’ choice of hospital was 50.9% (n = 962) and on participants’ choice of physician was 39.4%. It was found that 14.4% (n = 273) of the participants preferred the Ministry of Health’s (MH) Centralized Hospital Appointment System whereas 2.9% (n = 54) used Facebook to select a physician online. Of all participants, 34.2% (n = 647) reported having asked an orthopaedist his/her opinion about their diseases using the internet and the question-askers most often preferred the web-sites allowing question-asking. In addition, 48.5% (n = 314) of the question-askers reported that the answers given were helpful (Table 3).

Of the participants, 46.7% (n = 883) thought that orthopaedists should keep in contact with patients over...
Table 3 The distribution of participants’ choice of hospital or physician and the distribution of data about asking an orthopaedist his/her opinion about a disease (n = 1890)

| The effect of the internet on hospital choice | n    | %    |
|---------------------------------------------|------|------|
| 1Which one(s) of the following had an impact on your hospital choice | 962  | 50.9 |
| Centralized Hospital Appointment system     | 212  | 22.0 |
| Website of the hospital                     | 100  | 10.4 |
| Hospital rating websites                    | 100  | 10.4 |
| Peer advice on the internet                | 66   | 6.9  |
| Facebook                                   | 57   | 5.9  |
| Other (182MHRS call center)                | 487  | 50.6 |

1Which one(s) of the following had an impact on your physician choice

| Random choice from the MHRS system         | 723  | 14.4 |
| Other patients’ advice on the internet    | 169  | 8.9  |
| Physician rating websites                 | 101  | 5.3  |
| Website of the hospital                   | 123  | 6.5  |
| Physician personal website                | 110  | 5.8  |
| Facebook                                  | 54   | 2.9  |
| Other (182MHRS 182 call center)           | 1146 | 60.6 |

Asking an orthopaedist his/her opinion about a disease using the internet

| n    | %    |
|------|------|
| 647  | 34.2 (%) |

1Which option(s) do you prefer to ask an orthopaedist his/her opinion?

| Websites allowing asking physicians questions | 315  | 48.7 |
| Physician’s personal website                | 149  | 23.0 |
| Facebook                                   | 103  | 15.9 |
| E-mail                                     | 72   | 11.1 |
| Other                                      |      |      |

With which of the following can you describe the answers you were given?

| Helpful                            | 314  | 48.5 |
| Effective in my choice of hospital/physician | 137  | 21.2 |
| I became more confused              | 102  | 15.8 |

More than one option was selected.

the internet. The rate of asking an orthopaedist his/her opinion about their diseases in participants aged between 18-30 years was statistically significantly higher than that in patients aged between 31-45 years, 46-60 years, 61-75 years and older than 75 years (P = 0.001; P < 0.01). Of all participants, 19.5% (n = 368) attempted to treat their orthopaedic problems/diseases using the information they obtained online. There was a strong statistically significant relationship in the rate of participants’ using online information to treat their orthopaedic problems/diseases according to the age groups (P = 0.001; P < 0.01). The rate of attempting to treat their orthopaedic problems/diseases using online information was statistically significantly higher in the participants aged between 18-30 years than that in those aged between 61-75 years and older than 75 years (P = 0.030; P = 0.003; P = 0.049; P < 0.05) (Table 4). Thirty-four percent of the patients wanted to get postoperative X-ray controls performed using the internet whereas 66% of the participants stated that postoperative follow-ups should be face-to-face.

There was a strong statistically significant difference in the rates of answering “yes” to the question of “Have you ever asked an orthopedist his/her opinion about your disease” according to the educational level of the participants (P = 0.001; P < 0.01). The rate of answering “yes” to the question of “Have you ever asked an orthopedist his/her opinion about your disease using the internet” was statistically significantly lower in participants who were illiterate compared to that in those with secondary, high school and undergraduate education (P = 0.004; P = 0.003; P = 0.001; P < 0.01, respectively). Similarly, the rate answering “yes” to the question of “Have you ever asked an orthopedist his/her opinion about your disease using the internet” was statistically significantly lower among participants with elementary level of education compared to that in those with secondary, high school and undergraduate education” (P = 0.022; P = 0.010; P = 0.001; P < 0.05) (Table 5). The rate of reporting that the answers given was helpful was significantly higher in participants with an undergraduate degree compared to those who were illiterate, those with primary, elementary or high school education (P = 0.014; P = 0.001; P = 0.004; P = 0.001, respectively). The rate of stating “I became more confused” was significantly lower in patients with an undergraduate degree compared to those with elementary and secondary education (P = 0.006; P = 0.001) (Table 5).

According to the occupational status, the rate of internet use for asking an orthopaedist a question was higher in managers-qualified employees compared to unemployed-housewives, officers, workers-intermediate staff (P = 0.001; P = 0.013; P = 0.001). The rate of reporting that the answers given by the orthopaedist were useful was significantly higher in managers-qualified employees compared to unemployed participants.
housewives and workers-intermediate staff ($P = 0.001$, $P = 0.002$). The rate of stating “I became more confused” about the answers they were given was significantly lower in unemployed participants-housewives than managers-qualified employees ($P = 0.003$) (Table 6).

**DISCUSSION**

In recent years, social media or internet have evolved as a new communication tool between patients and physicians that is becoming increasingly popular and developed[11]. About 4% of daily searches on the internet daily are health-related globally[12]. The prevalence of the social media usage in patient-physician communication and the effects of the social media and internet on patients’ choice of physician and hospital and their search for treatment options have been increasingly addressed in recent studies[11,13].

In the United States, 41% of the adults use forums, blogs and websites allowing patients to ask physicians questions whereas 35% make online research for the physician who will treat them, and 28% for the hospital they will be treated at[14]. The internet or social media and Facebook were reported to be the most commonly used social media tools in England[10]. A similar study of orthopedic patients by Curry et al[15] reported that over 50% of patients had used social media for their orthopedic issues and 26% had seen a physician review site before their initial visit. Similar to these findings, 34.2% of all orthopaedic patients used internet to ask a physician questions about their diseases and 46.7% reported that orthopaedists should keep in contact with their patients over the internet. It was found that patients prefer websites allowing asking questions to orthopaedists (48.7%). On the other hand, social networking sites of a private type such as Facebook was less commonly used in patient-physician communication and only 7.5% of the patients friended...
Table 6  The comparison of the participants’ asking an orthopaedist his/her opinion and applying the information they obtained according to their occupations

| Occupations | n (%) | Unemployed - Housewife | Officer | Worker | Manager-Qualified | Other |
|-------------|-------|------------------------|---------|--------|-------------------|-------|
| Participants who asked an orthopaedist his/her opinion about a disease | Yes | 349 | 30.8 | 26 | 32.5 | 97 | 28.4 | 123 | 48.2 | 52 | 65 | 0.001<sup>b</sup> |
| | No | 784 | 69.2 | 54 | 67.5 | 245 | 71.6 | 132 | 51.8 | 28 | 35 | |
| Which one(s) of the following do you prefer to ask an orthopaedist his/her opinion? | Facebook | Yes | 59 | 16.9 | 3 | 11.5 | 24 | 24.7 | 14 | 11.4 | 3 | 5.8 | 0.018<sup>b</sup> |
| | No | 290 | 83.1 | 23 | 88.5 | 73 | 75.3 | 109 | 88.6 | 49 | 94.2 | |
| Twitter | Yes | 12 | 3.4 | 1 | 3.8 | 4 | 4.1 | 8 | 6.5 | 2 | 3.8 | 0.645<sup>b</sup> |
| | No | 337 | 96.6 | 25 | 96.2 | 93 | 95.9 | 115 | 93.5 | 50 | 96.2 | |
| Physician’s personal website | Yes | 76 | 21.8 | 9 | 34.6 | 17 | 17.5 | 32 | 26 | 15 | 28.8 | 0.236<sup>b</sup> |
| | No | 273 | 78.2 | 17 | 65.4 | 80 | 82.5 | 91 | 74 | 37 | 71.2 | |
| Websites allowing asking physicians questions | Yes | 177 | 50.7 | 13 | 50 | 35 | 36.1 | 62 | 50.4 | 28 | 53.8 | 0.113<sup>b</sup> |
| | No | 172 | 49.3 | 13 | 50 | 62 | 63.9 | 61 | 49.6 | 24 | 46.2 | |
| With which one(s) of the following can you describe the answers you were given? | I became more confused | Yes | 67 | 19.2 | 5 | 19.2 | 11 | 11.3 | 9 | 7.3 | 10 | 19.2 | 0.012<sup>b</sup> |
| | No | 282 | 80.8 | 21 | 80.8 | 86 | 88.7 | 114 | 92.7 | 42 | 80.8 | |
| Helpful | Yes | 150 | 43 | 12 | 46.2 | 42 | 43.3 | 79 | 64.2 | 31 | 59.6 | 0.001<sup>b</sup> |
| | No | 199 | 57 | 14 | 53.8 | 55 | 56.7 | 44 | 35.8 | 21 | 40.4 | |
| Participants who attempted to treat their orthopaedic diseases based on the information they obtained from the internet | Yes | 193 | 17 | 19 | 23.8 | 86 | 25.1 | 58 | 22.7 | 12 | 15 | 0.003<sup>b</sup> |
| | No | 940 | 83 | 61 | 76.3 | 256 | 74.9 | 197 | 77.3 | 68 | 85 | |

<sup>a</sup><sup>P</sup> < 0.05, <sup>b</sup>P < 0.01. 1Pearson χ<sup>2</sup> test; 2Fisher Freeman Halton test.

an orthopaedist on Facebook. Since websites such as Facebook are social networking tools based on close-friendship, a friend request from a patient is accepted only by few physicians<sup>16</sup>, the reason of which may be physicians’ concerns about patient privacy and ethical considerations. A review by Moorhead et al<sup>1</sup> reported that effective mechanisms should be developed for the maintenance of privacy and confidentiality of the information exchanged online between patients and physicians and there are several gaps in the use of social media for health communication. Bacigalupi suggested that physicians should limit social media contact with their patients via social networking tools such as Facebook<sup>17</sup>. It should be born in mind that smartphones, particularly, enable rapid access to social networking sites, thus creating legal risks resulting from rapid spread of an inaccurate content online without verifying it before. Accordingly, Terry reported that a content shared online could be found and exploited, no matter what your privacy setting was, and be used against you in a suit filed in a possible violation of privacy<sup>18</sup>. We believe that physicians should be careful about the accuracy and transparenciness of the content shared online and respect for patients with regard to personal liability and the protection of patient privacy, should avoid appearing to provide medical advice and should routinely monitor their social media accounts backward.

The WhatsApp messenger available for smartphones enables an effective and rapid communication between patients and physicians. Jagannathan et al<sup>19</sup> reported that the WhatsApp application of smartphones enables sending patient X-rays and clinical photographs or sharing problems effectively and emphasized patient privacy as a disadvantage of the application. A study on how doctors view and use social media in Australia showed that 67% of physicians preferred e-mail to communicate with their patients<sup>20</sup>. In our study, a majority of the patients preferred to communicate with their physicians using mobile phones (43.1%), which were followed by the WhatsApp (10.9%). Contact via e-mail was less common (9.3%), the reason why can be the common use of mobile phones for communication in our country, physician’s or patients’ finding it more difficult to communicate via e-mail or patients’ desire to reach their physicians easily and rapidly. Similarly, physicians have to give out their personal cell-phone numbers to patients to communicate via WhatsApp, which can bring patient-physician relationship to an informal level. Therefore, we believe that communication via e-mail is more formal.

With the advancements of the internet and the creation of various social networks, patients today
have the opportunity to do their routine follow-ups online with the physician. Curry et al\(^{[15]}\) concluded that orthopaedic patients who travelled between 120-180 miles from the hospital were more likely to use social media for health communication. In this study, 34% of the patients reported that it would be better to send X-rays performed in a hospital to the physician via social media tools, which can be attributed to transportation difficulties or easy communication through social media.

On the other hand, a majority of patients in our country reported (66%) that follow-ups should be face-to-face with the physician. In light of these data, even though the internet and social media are predicted to be increasingly used in patient follow-ups in our country, in consistent with advances around the world, we believe that the traditional physician-patient relationship is still important for patients.

In this study, the use of the internet and social media was highest in patients aged between 18-30 years and those with an undergraduate level of education. Consistent with our findings, the literature documents that the prevalence of internet and social media usage was higher among young adults and those with high educational level\(^{[15,21,22]}\). Of the participants who asked physicians questions using social media tools, 45.5% stated that the answers given were helpful. In addition, patients with an undergraduate degree were more confused with the answers they were given whereas illiterate participants or those with primary or secondary education became more confused with the answers they received. We believe that as the educational level increases, so does the capacity to understand and interpret the information in communication between individuals. Younger patients with high educational level particularly showed higher tendency to treat themselves based on the responses they were given by physicians. Accordingly, we believe that physicians should be aware of the patient’s age, educational level and expectations before giving patients treatment-related information using social media tools in order to avoid being placed in legal or ethical jeopardy.

There is an ongoing increase in the use of social media and internet for health information. About 61% of United States adults looked online for health information in 2008, which reached 72% in 2013\(^{[23]}\). Patients can share their health-related experiences or issues online via social media and discussion forums or can consult with experienced physicians. In addition, physicians have the opportunity to have more information about their patients\(^{[24,26]}\). Motivation, encouragement and shared experiences are important features of social network services, particularly for patients\(^{[27]}\). It has been reported that patients who had access to accurate information about their diseases over the internet displayed higher motivation and treatment compliance\(^{[28]}\). On the other hand, it appears to be difficult to reach high-quality and reliable information due to the probability of the collection or spread of unnecessary and inaccurate information through social media, resulting in confusion in patient-physician relationship\(^{[24,29]}\). Therefore, even though automated scanner tools and alerting systems have been developed by social network servers to prevent harms of the internet and social media, users should compare and verify the accuracy of the information shared\(^{[30]}\). Moen et al\(^{[31]}\) reported that communication over the internet may cause asymmetric results in the patient-physician relationship. Kietzmann et al\(^{[32]}\) suggested that long-term results of social media are yet to be fully explored, therefore, how social media activities vary in terms of function and impact should be monitored and understood and a congruent social media strategy should be developed and the social media setting and the frequency of conversations as well as being aware of what other users do in that platform and acting accordingly are of importance for a reliable health communication\(^{[33]}\).

There is a distinct difference between the culture of traditional medicine (which values privacy, confidentiality, one-on-one interactions and professional conduct) and that of social media (which values openness, informality and transparency, connection)\(^{[33]}\). Accordingly, several professional associations published guidelines to discourage physicians from interacting with their patients on social networking sites, such as Facebook\(^{[34,35]}\). It is beyond doubt that patients’ desire to contact with their physicians about their diseases and maintain the communication over the internet and social media will continue increasing. Therefore, possible advantages and disadvantages should be highlighted to enable physicians to use social media effectively and safely. Further comprehensive studies are warranted to fully elucidate physicians’ usage of the internet and social media and to identify current problems and to propose options and solutions. In addition, we believe that professional associations should play an active role regarding studies and necessary arrangements for identifying how patient-physician communication should be on the internet and social media.

In conclusion, even though internet and social media usage among orthopaedic patients for health communication or seeking solutions to health issues varied according to age, educational level and occupational status, its prevalence was found to be high in this study. Despite benefits and advantages of social media for patient-physician relationship, legal liability and possible harms and risks of the shared information and communication should be born in mind. Therefore, future comprehensive studies are warranted for establishing a healthy and effective communication between patient and health-care provider over the internet and social media and for the execution of necessary arrangements.

**COMMENTS**

**Background**

Social media tools enable patients to communicate with their physicians faster online and help them clarify their understanding of their illness, express
THE USE OF SOCIAL MEDIA BY ORTHOPAEDIC PATIENTS

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Themselves better and share their problems visually.

Research frontiers
Of all participants, 34.2% (n = 647) reported having asked an orthopedist/his/her opinion about their diseases using the internet and the question-askers most often preferred the web-sites allowing question-asking. The rate of asking an orthopedist his/her opinion about their diseases in participants aged between 18-30 years was statistically significantly higher than that in patients aged between 31-45 years, 46-60 years, 61-75 years and older than 75 years. According to the occupational status, the rate of internet use for asking an orthopedist a question was higher in managers-qualified employees compared to unemployed-housewives, officers, workers-intermediate staff.

Innovations and breakthroughs
The use of the internet and social media was highest in patients aged between 18-30 years and those with an undergraduate level of education. Younger patients with high educational level particularly showed higher tendency to treat themselves based on the responses they were given by physicians.

Applications
There is an ongoing increase in the use of social media and internet for health information. Physicians should be careful about the accuracy and transparency of the content shared online and respect for patients with regard to personal liability and the protection of patient privacy, should avoid appearing to provide medical advice and should routinely monitor their social media accounts backward.

Terminology
Facebook, Twitter, My Space and LinkedIn have been reported to be the most commonly used social networking sites around the world, being Facebook the most popular. Social media tools are commonly used by orthopedists to communicate with their patients.

Peer-review
This is a very interesting manuscript.

REFERENCES

1. Moorhead SA, Hazlett DE, Harrison L, Carroll JK, Irwin A, Hoving C. A new dimension of health care: systematic review of the uses, and limitations of social media for health communication. J Med Internet Res 2013; 15: e85 [PMID: 23615206 DOI: 10.2196/ jmir.1933]
2. Azu MC, Lilley EJ, Kolli AH. Social media, surgeons, and the Internet: an era or an error?. Am Surg 2012; 78: 555-558 [PMID: 22546128]
3. Hitwise. Top 20 sites and engines. [accessed 2011 May 3]. Available from: URL: http://www.hitwise.com/us/datacenter/main/dashboard-10133.html
4. Goffman E. The presentation of self in everyday life. New York: Doubleday Anchor Books, 1959
5. Kamel Boulos MN, Wheeler S. The emerging Web 2.0 social software: an enabling suite of sociable technologies in health and health care education. Health Info Libr J 2007; 24: 2-23 [PMID: 17331140 DOI: 10.1111/j.1471-1842.2007.00701.x]
6. Dawson J. Doctors join patients in going online for health information. New Media Age 2010: 7
7. St-Laurent-Gagnon T, Coughlin KW. Paediatricians, social media and blogs: Ethical considerations. Paediatr Child Health 2012; 17: 267-272 [PMID: 23633902]
8. Payette MJ, Albreksi D, Grant-Kels JM. „You’d know if you , friended’ me on Facebook”: legal, moral, and ethical considerations of online social media. J Am Acad Dermatol 2013; 69: 305-307 [PMID: 23866862 DOI: 10.1016/j.jaad.2013.02.024]
9. Jennings A, Powell J, Armstrong N, Sturt J, Dale J. A virtual clinic for diabetes self-management: pilot study. J Med Internet Res 2009; 11: e10 [PMID: 21821504 DOI: 10.2196/jmir.1111]
10. Nordqvist C, Hanberger L, Timpka T, Nordfeldt S. Health professionals’ attitudes towards using a Web 2.0 portal for child and adolescent diabetes care: qualitative study. J Med Internet Res 2009; 11: e12 [PMID: 19403464]
11. Grover M. Defining the patient-physician relationship in the era of Facebook. Acad Med 2010; 85: 1262 [PMID: 20671446 DOI: 10.1097/ ACM.0b013e3181e5c0d2]
12. Bass SB, Ruzek SB, Gordon TF, Fleisher L, McKeown-Conn N, Moore D. Relationship of Internet health information use with patient behavior and self-efficacy: experiences of newly diagnosed cancer patients who contact the National Cancer Institute’s Cancer Information Service. J Health Commun 2006; 11: 219-236 [PMID: 16537289 DOI: 10.1080/1070372050926794]
13. Saleh J, Robinson BS, Kugler NW, Illington KD, Patel P, Saleh KJ. Effect of social media in health care and orthopedic surgery. Orthopedics 2012; 35: 294-297 [PMID: 22495836 DOI: 10.3928/0144-3615-20120327-05]
14. Fox S, Jones S. The Social Life of Health Information. 2009. [accessed 2013 Apr 04]. Available from: URL: http://www.pewinternet.org.
15. Curry E, Li X, Nguyen J, Matzkin E. Prevalence of internet and social media usage in orthopedic surgery. Orthop Rev (Pavia) 2014; 6: 5483 [PMID: 25317312 DOI: 10.4081/or.2014.5483]
16. Moubarak G, Guiot A, Benhamou Y, Benhamou A, Hariri S. Facebook activity of residents and fellows and its impact on the doctor-patient relationship. J Med Ethics 2011; 37: 101-104 [PMID: 21660800 DOI: 10.1136/jme.2010.036293]
17. Bacigalupo G. Is there a role for social technologies in collaborative healthcare? Fam Syst Health 2011; 29: 1-14 [PMID: 21417520 DOI: 10.1037/a0020939]
18. Terry NP. Physicians and patients who friend or tweet: Constructing a legal framework for social networking in a highly regulated domain. Indiana Law Review 2010; 43: 285-295 [DOI: 10.18060/4040]
19. Jagannathan M. Efficacy of communication amongst staff members at plastic and reconstructive surgery section using smartphone and mobile What App. Indian J Plast Surg 2013; 46: 506-507 [PMID: 24459339]
20. Brown J, Ryan C, Harris A. How doctors view and use social media: a national survey. J Med Internet Res 2014; 16: e267 [PMID: 25470407 DOI: 10.2196/jmir.3589]
21. Rozental TD, George TM, Chucko AT. Social networking among upper extremity patients. J Hand Surg Am 2010; 35: 819-823.e1 [PMID: 20227837 DOI: 10.1016/j.jhsa.2009.12.043]
22. Pazzarei O, Golge UH, Camurey Y, Saygılı H, Kılınc S, Keskinbikci MV, Korkmaz M. Internet use by orthopedic and traumatology patients in Turkey. Cemhuriyet Medical Journal 2015; 37: 269-275 [DOI: 10.7197/cmj.v37i4.5000012432]
23. Internet World Stats (IWS). Internet Usage & Population Statistics, 2012. Available from: URL: http://www.internetworldstats.com/stats.html
24. Adams SA. Blog-based applications and health information: two case studies that illustrate important questions for Consumer Health Informatics (CHI) research. Int J Med Inform 2010; 79: e89-e96 [PMID: 18703344 DOI: 10.1016/j.ijmedinf.2008.06.009]
25. Hwang KO, Ottenbacher AJ, Green AP, Cannon-Diehl MR, Richardson O, Bernstein EV, Thomas EJ. Social support in an Internet weight loss community. Int J Med Inform 2010; 79: 5-13 [PMID: 19945338 DOI: 10.1016/j.ijmedinf.2009.10.003]
26. Gajaria A, Young E, Goodale T, Chanach A. Beliefs about attention-deficit/hyperactivity disorder and response to stereotypes: youth postings in Facebook groups. J Adolesc Health 2011; 49: 15-20 [PMID: 21700151 DOI: 10.1016/j.jadohealth.2010.09.004]
27. Takahashi Y, Uchida C, Miyaki K, Sakai M, Shimbo T, Nakayama T. Potential benefits and harms of a peer support social network service on the internet for people with depressive tendencies: qualitative content analysis and social network analysis. J Med Internet Res 2009; 11: e29 [PMID: 19632970 DOI: 10.2196/jmir.1142]
28. Barlow JH, Stapley J, Ellard DR, Gilchrist M. Information and self-management needs of people living with bleeding disorders: a survey.
Duymus TM et al. Social media usage of orthopaedic patients

Haemophilia 2007; 13: 264-270 [PMID: 17498075 DOI: 10.1111/j.1365-2516.2007.01444.x]

29 Hughes B, Joshi I, Lemonde H, Wareham J. Junior physician’s use of Web 2.0 for information seeking and medical education: a qualitative study. Int J Med Inform 2009; 78: 645-655 [PMID: 19501017 DOI: 10.1016/j.ijmedinf.2009.04.008]

30 Adams SA. Revisiting the online health information reliability debate in the wake of “web 2.0”: an inter-disciplinary literature and website review. Int J Med Inform 2010; 79: 391-400 [PMID: 20188623 DOI: 10.1016/j.ijmedinf.2010.01.006]

31 Moen A, Smørdal O, Sem I. Web-based resources for peer support - opportunities and challenges. Stud Health Technol Inform 2009; 150: 302-306 [PMID: 19745318 DOI: 10.3233/978-1-60750-044-5-302]

32 Kietzmann JH, Hermkens K, McCarthy IP, Silvestre BS. Social media? Get serious! Understanding the functional building blocks of social media. Business Horizons 2011; 54: 241-251 [DOI: 10.1016/j.bushor.2011.01.005]

33 George DR. “Friending Facebook?” A minicourse on the use of social media by health professionals. J Contin Educ Health Prof 2011; 31: 215-219 [PMID: 21953663 DOI: 10.1002/chp.20129]

34 Dolan P. Rebuff patient Facebook friend overtures, British Medical Assn. advises. AMA MedNews. [updated 2011 Aug 1]. Available from: URL: http://www.ama-assn.org/ama

35 Federation of State Medical Boards. Model Policy Guidelines for the Appropriate Use of Social Media and Social Networking in Medical Practice. Euless, TX: Federation of State Medical Boards. [updated 2012 Apr]. Available from: URL: http://www.fsmb.org/pdf/pub-social-media-guidelines.pdf

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