

## Original article

## Social media and Internet usage of orthopaedic surgeons



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## ABSTRACT

**Introduction:** The main objective of this study was to identify the prevalence of social media and Internet usage of orthopaedists and to determine its effects on patient–physician communication.

**Methods:** Data were collected by e-mail from 321 orthopaedists who filled out the questionnaire. The questionnaire consists of a total 25 items pertaining to personal information, which social media tool they use, their overall views of and expectations from social media, the effects of social media on patient–physician relationship and communication.

**Results:** The rates of keeping in contact with patients and “often” helping patients to manage their treatments over social media increased with age ( $p < 0.05$ ). It was found that the rate of helping patients to manage their treatments over social media was significantly higher in academicians compared to that in specialist physicians ( $p = 0.040$ ). The rates of having a personal website and being a member of online physician platform and social-networking sites were higher in participants working in the private sector than participants working in the public sector ( $p = 0.001$ ). It was found that the rate of finding it useful to be in contact with patients over social media was higher in physicians working in the private sector compared to that in those working in the public sector ( $p < 0.01$ ).

**Conclusion:** Social media tools and Internet are commonly used by orthopaedists to communicate with their patients. Even though there are beneficial effects in patient–physician relationship, effective standards and regulations should be developed to enable a safe communication and to resolve ethical and legal uncertainties.

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## 1. Introduction

Social media has evolved as a new communication tool for health information and its usage is increasing rapidly each day worldwide.<sup>1,2</sup> The effects of this virtual/online relationship on clinical practice and patient–physician relationship have long been of interest.<sup>3</sup> The media dimension reduces uncertainties between individuals in face-to-face interaction whereas the social

dimension enables greater self-expression and control of the impressions that others form of them.<sup>4</sup> Social media offers enhanced interpretation and immediate spread of visual or written content shared online,<sup>5</sup> which caused changes in the nature and velocity of the communication between patients and physicians, resulting in the frequent use of social media to resolve health problems.<sup>2</sup> A study in Australia reported that 69.7% of physicians discussed online information sources through the internet or social media and Facebook was reported to be the most commonly used social media tool in England.<sup>2,6</sup> These rapidly improving communication technologies offer many advantages for patients and physicians. On the other hand, communication over social media or internet transforms the traditional patient–physician relationship, makes the boundaries of ethical liability vague and makes patient privacy increasingly difficult to protect.<sup>7,8</sup> This study attempts to identify orthopaedists usage and views of social media and

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internet. The data obtained can highlight the regulations required for social media and Internet use in patient–physician relationship for health communication.

The objective of this study was to identify the prevalence of social media and Internet usage of orthopaedists and its effects on patient–physician communication.

## 2. Materials and methods

Data of this cross-sectional descriptive study were collected by sending a questionnaire by e-mail to 2597 orthopaedists who were registered users of [turkorthopod@yahoo.groups.com](mailto:turkorthopod@yahoo.groups.com). A total of 321 orthopaedists agreed to fill in the questionnaire. All participants were orthopaedists and those who provided education at a university or a higher-education institution, did research and made contribution in their discipline through their individual research (assistant professors, professors, etc.) were defined as academician. Accordingly, of all participants, those who were holding an academic degree were classified as academician and those without an academic degree were classified as specialist. Participants identity information was not included in the questionnaire and each questionnaire was numbered. Participants received no financial or educational incentive.

The questionnaire consisted of a total of 30 questions pertaining to personal information (age, the institution where the participant works, time of experience, academic degree), the social media tools used by the participants, their views of social media, their expectations from social media, their goals, whether social media is necessary in patient–physician interaction, the prevalence of social media use and Facebook. Questions were multiple choice-options in form (Table 1). Questions were developed by the study team based on a review of literature.<sup>2</sup> The final version of the questionnaire was tested on 10 orthopaedists.

**Table 1**  
Questions pertaining to social media usage of orthopaedists.

1. How old are you?
2. What gender are you?
3. What academic degree do you currently hold?
4. In which institution do you work?
5. How long have you been a specialist (year)?
6. Which one(s) of the following social media accounts do you have?
7. Which one(s) of the following do you use to communicate with your patients?
8. Do your patients reach you using social media tools (including e-mail)?
9. Which one(s) of the following social media sites do you use at least once in a week?
10. How many hours a day do you use the social media tools above within working hours?
11. How many hours a day do you use the social media tools above within off-duty hours?
12. What do you think about patients' contacting you through social media?
13. Do you get into contact with your patients through social media in order to help them manage their treatments or to discuss alternative treatment options with them?
14. If a patient, with whom you contact through social media, demands online information about his/her disease, would you accept it?
15. If videos or photographs about your professional practices are shared online by others, would you like them to be viewed by your patients?
16. Do you share online your procedures that you performed or treatments that you provided to make your social media followers see?
17. Do you recommend your patients to follow you on social media?
18. About what percent of your patients find you by doing an online search?
19. Do you have concerns about having legal problems that may arise from communicating with your patients over the internet?
20. Do you use social media tools or internet to obtain more information about your patients' treatments?
21. Would you like to present your patients a video introducing you and your practices over the internet or social media?
22. Do you have a Facebook account?
23. Do you receive friend requests from your patients on Facebook?
24. If yes, do you accept or decline these requests?
25. What do you think about your patients' viewing your Facebook account?

## 2.1. Statistics

Statistical analysis was performed using NCSS (Number Cruncher Statistical System) 2007 (Kaysville, Utah, USA). Data were analyzed using descriptive statistics (mean, standard deviation, median, frequency, rate, minimum, maximum) whereas qualitative data were compared using the Pearson Chi-square test, Fisher Freeman Halton test and Yates' continuity correction test (Yates corrected Chi-square). *p* values of <0.01 and 0.05 were considered statistically significant.

## 2.2. Sample size calculation

A power analysis was conducted using G\*Power (v3.1.7). The targeted population was 2597 orthopaedists in our survey and each orthopaedist was invited to take part in the survey via e-mail. Based on the targeted population, we used a 90% confidence level with a margin of error of 5% and the minimum sample size was calculated to be 244. About 12.5% of the targeted population participated in the study and the study was completed with 321 participants.

## 3. Results

Of all participants, 98.8% were males and were aged between 25 and 45 years (73.2%) and the majority had Facebook accounts ( $n = 235$ , 73.2%) (Fig. 1). Of all participants, 246 (76.6%) were specialist and 75 (23.4%) were academicians (assistant professor and professor). According to the institution where the participant works, 148 (46.1%) in the public hospital, 173 (53.9%) in the private hospital.

### 3.1. Comparison according to age

There was no statistically significant difference in having Facebook, Twitter and LinkedIn accounts according to age ( $p < 0.05$ ) whereas the rate of using personal website increased with age ( $p < 0.01$ ). The most commonly used social media tool in patient–physician communication was WhatsApp (62.9%) and e-mail (57.5%) whereas only 23.3% reported using Facebook. No statistically significant difference was noted in the rates of using Facebook, Twitter, WhatsApp and Instagram according to age groups whereas the rate of using e-mail to communicate with patients increased significantly with age ( $p < 0.01$ ). No statistically significant difference was found in terms of sharing online information about a disease, sharing medical practices (surgeries and treatments) online and recommending patients to follow them on social media between the age groups ( $p > 0.05$ ). To the question of “Do you help your patients to manage their treatments over social media”, 15 (30.6%) and 16 (43.2%) answered “never” from the 46–55 ( $n = 49$ ) years old-group and  $\geq 56$  ( $n = 37$ ) years old-group, respectively, whereas, this rate was higher among younger age groups. Similarly, the rates of “always” and “sometimes” helping patients to manage their treatments over social media were higher and more significant in older-age groups (46–55 ( $n = 49$ ) and  $\geq 56$  ( $n = 37$ )) compared to those in younger age-groups (25–35 ( $n = 111$ ) and 36–45 ( $n = 124$ )) ( $p < 0.05$ ) (Table 2).

### 3.2. Comparison according to academic degree

There was no statistically significant difference in having Facebook, Twitter and Instagram accounts according to academic degree ( $p < 0.05$ ). On the other hand, the rate of having a personal website was statistically significantly higher in academicians compared to that in specialist physicians ( $p < 0.01$ ). In addition, the rate of using e-mail to communicate with patients was

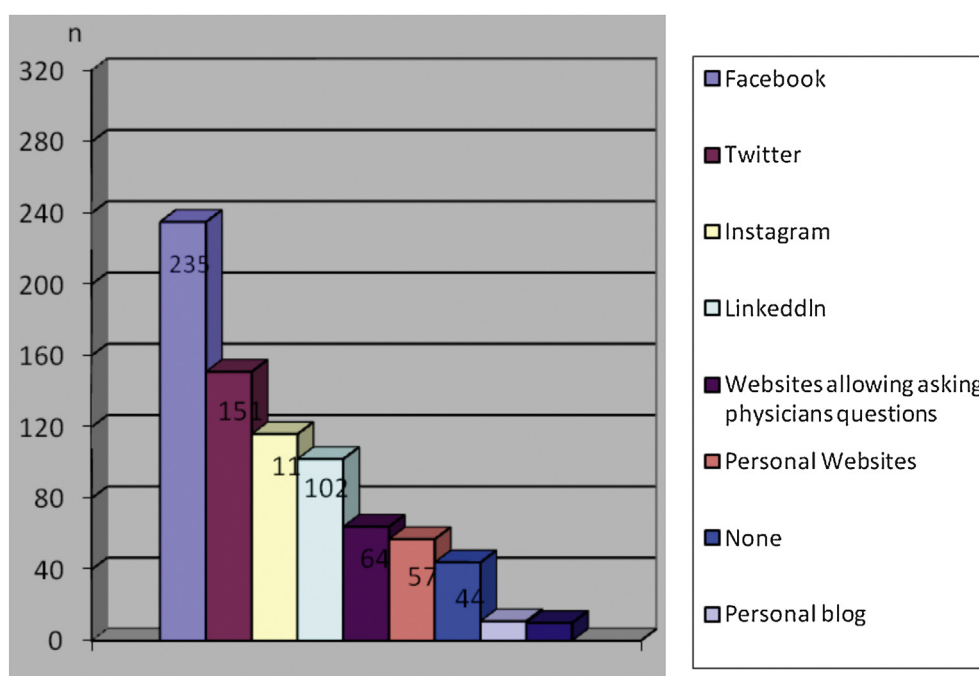


Fig. 1. Social media tools used by the participants (n:321).

Table 2

The comparison of social media tools preferred and used by the participants to communicate with their patients and the evaluation of participants' Facebook usage according to age.

|  |                        | 25–35<br>(n = 111) | 36–45<br>(n = 124) | 46–55<br>(n = 49) | ≥56<br>(n = 37) | p                    |
|--|------------------------|--------------------|--------------------|-------------------|-----------------|----------------------|
| Do you help your patients to manage their treatments over social media                         | Never                  | 64 (57.7)          | 61 (49.2)          | 15 (30.6)         | 16 (43.2)       | 0.042 <sup>a</sup> * |
|  | Sometimes              | 43 (38.7)          | 57 (46.0)          | 30 (61.2)         | 17 (45.9)       |                      |
|  | Often                  | 4 (3.6)            | 6 (4.8)            | 4 (8.2)           | 4 (10.8)        |                      |
| What do you do when you receive a friend request from a patient of yours on Facebook (n = 235) | I never accept it      | 30 (34.9)          | 24 (27.3)          | 10 (27)           | 10 (41.7)       | 0.562 <sup>a</sup>   |
|  | I some times accept it | 38 (44.2)          | 42 (47.7)          | 16 (43.2)         | 9 (37.5)        |                      |
|  | I often accept it      | 15 (17.4)          | 18 (20.5)          | 6 (16.2)          | 3 (12.5)        |                      |
|  | I always accept it     | 3 (3.5)            | 4 (4.5)            | 5 (13.5)          | 2 (8.3)         |                      |

<sup>a</sup> Fisher Freeman Halton test.

\*  $p < 0.05$ .

significantly higher in academicians compared to that in specialist physicians. The rate of “often” helping patients to manage their treatment through social media was significantly higher in academicians ( $p = 0.040$ ;  $p < 0.05$ ) (Table 3).

### 3.3. Comparison according to the institution where the participant works

There was no statistically significant difference in physicians' having social media accounts such as Facebook and Twitter according to the institution where they worked ( $p > 0.05$ ) whereas the rates of having a personal website and being a registered member of physician's platform websites were significantly higher in orthopaedists working in the private sector ( $p = 0.001$ ). The rate of using email and WhatsApp to communicate with patients was significantly higher in physicians working in the private sector compared to that in physicians working in the public sector ( $p = 0.003$ ). The rates of finding it “often useful” and “always useful” to keep in contact with patients through social media were high in physicians working in the private sector whereas the rates of finding it “sometimes useful” and “never useful” were high in

physicians working in the public sector ( $p < 0.01$ ). The rate of answering “never” to the question of “do you get into contact with your patients through social media in order to help them manage their treatments” was higher in physicians working in the public sector whereas the rate of answering “often” was higher in those working in the private sector ( $p < 0.01$ ) (Table 4).

### 3.4. Ethical and legal concerns about patient–physician communication through Facebook and social media

Of the participants with Facebook accounts, 67.6% answered “sometimes” and 19.5% answered “often” to the question of “do you receive friend requests from your patients”. Of the physicians receiving friend requests, 5.8% “always” and 32.4% “never” accepted them. Of all physicians, 17.8% answered “often” and 65% answered “sometimes” to the question of “do your patients reach you using social media tools”, and 6.9% reported finding it “always”, 49.5% “sometimes” and 20.4% “never” useful. Of all physicians, 19.9% “never”, 18.4% “always” and 61.57% “often” had legal concerns about communication with patients through social media.

**Table 3**  
The evaluation of the social media accounts that participants have and social media tools that they use to communicate with their patients according to academic degree.

|   |           | Academician<br>(n = 75) | Specialist<br>(n = 246) |                       |
|---|-----------|-------------------------|-------------------------|-----------------------|
| Social media tools preferred by participants to communicate with their patients | E-mail    | 58 (77.3)               | 125 (50.8)              | 0.001 <sup>a,**</sup> |
|   | Facebook  | 19 (25.3)               | 55 (22.4)               | 0.705 <sup>c</sup>    |
|   | Twitter   | 2 (2.7)                 | 7 (2.8)                 | 1.000 <sup>d</sup>    |
|   | WhatsApp  | 44 (58.7)               | 156 (63.4)              | 0.458 <sup>b</sup>    |
|   | Instagram | 2 (2.7)                 | 16 (6.5)                | 0.262 <sup>d</sup>    |
| Do you help your patients to manage their treatments over social media          | Never     | 34 (45.3)               | 122 (49.6)              | 0.040 <sup>a,*</sup>  |
|   | Sometimes | 32 (42.7)               | 115 (46.7)              |                       |
|   | Often     | 9 (12.0)                | 9 (3.7)                 |                       |
| Do you accept friend requests from patients (n = 235)                           | Never     | 18 (34.6)               | 56 (30.6)               | 0.609 <sup>a</sup>    |
|   | Sometimes | 25 (48.1)               | 80 (43.7)               |                       |
|   | Often     | 6 (11.5)                | 36 (19.7)               |                       |
|   | Always    | 3 (5.8)                 | 11 (6)                  |                       |

<sup>a</sup> Fisher Freeman Halton test.

<sup>b</sup> Pearson Chi-square test.

<sup>c</sup> Yates' continuity correction.

<sup>d</sup> Fisher exact test.

\*  $p < 0.05$ .

\*\*  $p < 0.01$ .

**Table 4**  
The evaluation of the social media accounts that the participants have and social media tools that they use to communicate with their patients according to the institution where they work.

|   |           | Public (n = 220)<br>n (%) | Private (n = 101)<br>n (%) |                       |
|---|-----------|---------------------------|----------------------------|-----------------------|
| Social media tools preferred by the participants to communicate with their patients | E-mail    | 113 (51.4)                | 70 (69.3)                  | 0.003 <sup>a,**</sup> |
|   | Facebook  | 49 (22.3)                 | 25 (24.8)                  | 0.624 <sup>a</sup>    |
|   | Twitter   | 7 (3.2)                   | 2 (2.0)                    | 0.725 <sup>c</sup>    |
|   | WhatsApp  | 127 (57.7)                | 73 (72.3)                  | 0.012 <sup>a,*</sup>  |
|   | Instagram | 11 (5.0)                  | 7 (6.9)                    | 0.662 <sup>b</sup>    |
| Do you help your patients to manage their treatments over social media              | Never     | 122 (55.5)                | 34 (33.7)                  |                       |
|   | Sometimes | 91 (41.4)                 | 56 (55.4)                  | 0.019 <sup>a,*</sup>  |
|   | Often     | 7 (3.2)                   | 11 (10.9)                  |                       |
| Do you give online information about a disease                                      | Never     | 79 (35.9)                 | 24 (23.8)                  |                       |
|   | Sometimes | 100 (45.5)                | 44 (43.6)                  | 0.019 <sup>a,*</sup>  |
|   | Often     | 32 (14.5)                 | 23 (22.8)                  |                       |
|   | Always    | 9 (4.1)                   | 10 (9.9)                   |                       |
| Do you let your patients view your posts on social media                            | Yes       | 69 (31.4)                 | 43 (42.6)                  |                       |
|   | No        | 151 (68.6)                | 58 (57.4)                  | 0.050 <sup>a,*</sup>  |

<sup>a</sup> Pearson Chi-square test.

<sup>b</sup> Yates' continuity correction.

<sup>c</sup> Fisher exact test.

\*  $p < 0.05$ .

\*\*  $p < 0.01$ .

#### 4. Discussion

Patients can share their experiences or problems about their diseases online in social networking sites or consult with experienced physicians.<sup>9,10</sup> In addition, social media enables physicians to attract new potential patients, introduce themselves and display their professional accomplishments.<sup>11</sup> In this study, it was found that orthopaedists used social media tools frequently, being Facebook the most popular one with a rate of 73%. In the literature, the rate of physicians who have a Facebook account was consistent with that in our study.<sup>12,13</sup> On the other hand, the rate of physicians' using Facebook to communicate with patients was low (23%), which may be caused by the fact that may have legal or ethical concerns. The American College of Physicians Ethics recommended physicians to recognize the importance of relationships with patients and to protect the privacy and confidentiality of their patients.<sup>14</sup> A review by Moorhead et al. 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.<sup>3</sup> Therefore, several studies have reported that physicians use social media frequently in their

own private lives, however, they rarely use social media to communicate with their patients.<sup>6,15</sup> In addition, even though patients often extend friend requests to their physicians through social media, particularly on Facebook, these requests are accepted only by few physicians.<sup>12</sup> In this study, 86.1% of the participants who had a Facebook account reported receiving friend requests from their patients but only 5.8% of them reported that they would "always" accept friend requests from their patients. Because, 80% of the participants thought that the use of social media may pose ethical challenges in patient–physician relationships. Because of these concerns, physicians were strictly recommended to limit their use of social media tools such as Facebook.<sup>16</sup> Accordingly, several professional associations such as the British Medical Association and the Federation of State Medical Boards published guidelines to discourage physicians from interacting with their patients on social networking sites, such as Facebook.<sup>17,18</sup>

In this study, it was found that WhatsApp was commonly used by physicians to communicate with their patients. It has been reported that the WhatsApp application of smartphones enables sending patient X-rays and clinical photographs or sharing problems effectively.<sup>19</sup> However, 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 would be more formal. Brown et al. reported that 67% of physicians preferred e-mail to communicate with their patients in Australia.<sup>6</sup> In this study, e-mail was the second most commonly preferred communication tool among participants (57.5%), with WhatsApp being the first. The rates of using e-mail, WhatsApp and personal website were significantly higher in physicians working in the private sector. In addition, the rates of private-sector physicians’ “often” giving online information to their patients, helping them to manage their treatments, keeping in contact with them and their social media posts being viewed by their patients were significantly higher than public sector physicians. It is obvious that orthopaedists working in the private sector would like their patients to reach them more easily compared to those working in the public sector. This significant difference between the private and public sectors may be associated with physicians’ desire to be accessed any time of the day and the motivation related to flexible salary scheme offered by the private sector.

Unlike traditional websites, social media networking sites allow online face-to-face communication.<sup>20</sup> In this study, the rate of social media usage among the participants was high whereas the rate of using traditional or personal websites was significantly low. On the other hand, the rates of using personal website and “often” helping patients to manage their treatments through social media were significantly higher in advanced age-physicians based on age, in private-sector physicians based on the institution where the participant work and in academicians based on academic degree. The rates of having a personal website were significantly higher in physicians working in the private sector compared to those working in the public sector and in academicians compared to specialist physicians. The rate of social media usage among young adults was higher whereas the rate of using social media in patient–physician relationships was lower in young orthopaedists compared to that in advanced-aged orthopaedists. The advanced age and increased professional experience raise self-confidence, which results in the development of the desire to share this experience with everyone. Similarly, the rates of physicians who found it “useful” for patients to view their social media posts and those who allowed patients to view their profiles increased with age in this study.

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.<sup>21</sup> Similar problems may be encountered with traditional websites, however, social media tools allow people to download information, regardless of who the user and what the quality of the information is, resulting in its rapid dissemination online.<sup>22</sup> Despite the potential negative and harmful effects of inaccurate information or content shared online, patients will always have demands to communicate with their physicians to obtain information about or seek solutions to their diseases using social media tools. From physicians’ perspective, social media offers opportunities for sharing their experiences and knowledge with large masses rapidly without paying any charges and enables fast and free introduction of health-related conferences and social activities. Therefore, we believe that social media usage among physicians, patients or healthcare institutions will continue increasing at an unprecedented pace. Long-term outcomes and risks of social media for orthopaedists should be investigated. Particularly smartphones enable rapid access to social media sites and rapid spread of an inaccurate content without verifying it before, which is likely to result in legal risks and jeopardy. Accordingly, it has been 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>23</sup> In this

study, participants’ ethical concerns were examined through the questionnaire but they were not asked whether they had experienced a legal problem before, which may constitute one of the limitations of this study, since we believe that it would be beneficial to obtain information about the prevalence of the realization of these concerns.

Kietzmann et al. 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.<sup>24</sup> Therefore, 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. 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.<sup>25</sup>

The fact that this study was conducted only with those who had an e-mail account or that those who had no interest in social media might have not responded to the e-mail invitation, may be evaluated as a limitation or bias. On the other hand, since this study specifically targeted those who used social media and investigated to which extent and how social media was used in patient–physician relationship, conducting this study only with e-mail users might have contributed to producing more significant results. In addition, today, a physician without an e-mail account can neither be a social-media user nor an active internet-user. Furthermore, we believe that the possibility that the e-mail invitation was responded by those who had an interest in social media or who used social media more actively would help producing more significant results.

## 5. Conclusion

Social media is commonly used by orthopaedists to communicate with their patients in Turkey. On the other hand, social media usage among physicians varies depending on the institution where they work, their ages or academic degrees. It was concluded that, despite benefits and advantages of social media for patient–physician relationship, uncertainties about legal liability and possible harms and risks of the shared information should be clarified and effective standards and rules should be developed to make this communication area safer.

## Conflicts of interest

The authors have none to declare.

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## References

- Green B, Hope A. Promoting clinical competence using social media. *Nurse Educ.* 2010;35(3):127–129.
- Dawson J. Doctors join patients in going online for health information. *New Media Age.* 2010;7.
- Moorhead SA, Hazlett DE, Harrison L, Carroll JK, Irwin A, Hoving C. A new dimension of health care: systematic review of the uses, benefits, and limitations of social media for health communication. *J Med Internet Res.* 2013;15(4):e85.

4. Short J, Williams E, Christie B. *The Social Psychology of Telecommunications*. Hoboken, NJ: John Wiley & Sons, Ltd.; 1976.
5. Thackeray R, Neiger BL, Hanson CL, McKenzie JF. Enhancing promotional strategies within social marketing programs: use of Web 2.0 social media. *Health Promot Pract*. 2008;9(4):338–343.
6. Brown J, Ryan C, Harris A. How doctors view and use social media: a national survey. *J Med Internet Res*. 2014;16(12):e267.
7. Antheunis ML, Tates K, Nieboer TE. Patients' and health professionals' use of social media in health care: motives, barriers and expectations. *Patient Educ Couns*. 2013;92(3):426–431.
8. Payette MJ, Albreski 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(2):305–307.
9. Lagu T, Hannon NS, Rothberg MB, Lindenauer PK. Patients' evaluations of health care providers in the era of social networking: an analysis of physician-rating websites. *J Gen Intern Med*. 2010;25(9):942–946.
10. Gajaria A, Yeung E, Goodale T, Charach A. Beliefs about attention-deficit/hyperactivity disorder and response to stereotypes: youth postings in Facebook groups. *J Adolesc Health*. 2011;49(1):15–20.
11. Vance K, Howe W, Dellavalle RP. Social Internet sites as a source of public health information. *Dermatol Clin*. 2009;27:133–136.
12. 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(2):101–104.
13. Campbell EG, Donelan K, DesRoches C, Roman A, Bolcic-Jankovic D. The patient–doctor relationship and online social networks: results of a national survey. *J Gen Intern Med*. 2012;27(4):403–404.
14. Snyder L. for the American College of Physicians Ethics, Professionalism and Human Rights Committee. American college of physicians ethics manual: sixth edition. *Ann Intern Med*. 2012;156:73–104.
15. Bosslet GT, Torke AM, Hickman SE, Terry CL, Helft PR. The patient–doctor relationship and online social networks: results of a national survey. *J Gen Intern Med*. 2011;26(10):1168–1174.
16. Bacigalupe G. Is there a role for social technologies in collaborative healthcare? *Fam Syst Health*. 2011;29:1–14.
17. Dolan P. Rebuff patient Facebook friend overtures, British Medical Assn. advises. *AMA MedNews*. 2011.
18. Federation of State Medical Boards. *Model Policy Guidelines for the Appropriate Use of Social Media and Social Networking in Medical Practice*. Eules, TX: Federation of State Medical Boards; 2012. [www.fsmb.org/pdf/pub-social-mediaguidelines.pdf](http://www.fsmb.org/pdf/pub-social-mediaguidelines.pdf) Accessed 07.05.12
19. Jagannathan M. Efficacy of communication amongst staff members at plastic and reconstructive surgery section using smartphone and mobile WhatsApp. *Indian J Plast Surg*. 2013;46(3):506–507.
20. Hwang KO, Ottenbacher AJ, Green AP, et al. Social support in an Internet weight loss community. *Int J Med Inform*. 2010;79(1):5–13.
21. 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(10):645–655.
22. 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(6):391–400.
23. Terry NP. Physicians and patients who "friend" or "tweet": constructing a legal framework for social networking in a highly regulated domain. *Indiana Law Rev*. 2010;43:285–295.
24. Kietzmann JH, Hermkens K, McCarthy IP, Silvestre BS. Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons*. 2011;54(3):241–251.
25. George DR. "Friending Facebook?" A minicourse on the use of social media by health professionals. *J Contin Educ Health Prof*. 2011;31(3):215–219.