



## Social Networking Use in Joint Replacement and Adult Reconstruction Surgery Patients

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### Abstract

The aim of this study was to determine the prevalence of social networking use by patients in an adult reconstruction practice and to identify the potential impact of social networking on physician choice. A 9-item survey was administered to 125 consecutive patients presenting to an adult reconstruction clinic. Data collected included demographic information, Internet access, use of the Internet to obtain medical information, participation in social networking, and desire for physician social networking use. Sixty-five females and forty-nine males participated in the study. Ninety-six patients reported having Internet access at home (84.9% of total respondents) and 59 admitting to using the Internet to collect medical information (55.1%). Sixty-one patients reported social networking use (56.5%). Ninety of 104 participants (86.5%) reported that social networking use by a physician would not affect surgeon choice. This study found that a large majority of the survey respondents have access to the Internet at home and over half of the patients use the Internet to gather medical information. The prevalence of Internet and social media use and age of the patient are inversely related. While patients would like to access information including video or animation of the procedure, updates on the practice, and frequently asked questions this access does not seem to play a role in surgeon choice. It is extremely important to evaluate and understand the patient population demographics in order to optimize the success of one's practice.

**Keywords:** Social Media; Social Networking; Joint Replacement; Adult Reconstruction

### Introduction

It took radio 38, television 13, and the World Wide Web 4 years to reach 50 million users. Current total web searches per month reach 11 billion in the United States alone [1]. The Internet has become one of the most widely used sources of information and communication with usage that has penetrated approximately 86.9% of the United States population [2]. Rapid development of social media websites has played a part in this growth. As of 2014, 74% of online adults use social networking sites with 71% using Facebook, 23% using Twitter, 26% using Instagram, 28% using Pinterest and 28% using LinkedIn [3]. Interestingly, 52% of online adults use multiple social media sites and more than half of all online adults 65 and older use Facebook [4].

Recently, an explosion of Internet use for gathering health information has occurred. Approximately 72% of Internet users have searched online for health information within the past year [5]. The vast majority of online health information seekers (77%) began their last session at a search engine, 13% at a site that specializes in health information such as WebMD and only 1% at a social networking site [5]. The most commonly-researched topics are specific diseases or conditions, treatments or procedures, and doctors or other health care professionals [5].

Social media are becoming present in many areas of health care with platforms aimed at patient education, peer-to-peer communication between patients and health care providers, and service marketing. These platforms share the ultimate goal of improving patient care. The blending of medicine with electronic media brings with it new issues regarding confidentiality and credibility [6]. Health care providers also face limitations and barriers if they want to share patient health stories using social media [7]. A growing number of experts believe that a national, or even global, regulatory structure is needed to incorporate health care into social media [7, 8]. Surgeons are no different than the general population in adopting new technologies such as social media with a recent American College of Surgeons survey reporting that 55% of respondents used Facebook, 48% used LinkedIn, and 82% viewed videos on YouTube for their personal use [9].

Few studies have focused on the use of social media in the field of orthopaedic surgery [6, 7, 10]. A recent study evaluated the prevalence of Internet or social media usage in new patients referred to a major academic orthopaedics center across all orthopaedic subspecialties [10]. They found that 51% of patients used social networking sites with 92% of the patients that reported not using social networking sites being over the age of 40. In addition, sports medicine patients tended to be higher social networking users relative to other services and was statistically higher when compared to the joints/tumor service. As a majority of orthopaedic surgeons are in private practice or employed by community hospitals, the demographics of Internet and social media usage may be different in these arenas.

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Institutional review board granted approval for this prospective nonrandomized study. In association with Grand Rapids Medical Education Partners (GRMEP), a 9-item survey was developed to collect data including demographic information, Internet access, use of the Internet to obtain medical information, participation in social networking, and desire for physician social networking use.

After informed consent, the option to complete this voluntary survey was given to 125 consecutive patients, both new and established, who were  $\geq 18$  years of age with an appointment at a private practice clinic of an adult hip and knee reconstruction surgeon in Grand Rapids, MI. Patients less than the age of 18 or those who did not speak English were not recruited. Patients were recruited for a period of four months (September 2012 – January 2013). The voluntary survey was completed in the waiting room and no personal health information was recorded.

All data were tabulated in Microsoft Excel (2012 version; Microsoft, Redmond, WA). Descriptive statistics were used for analysis. Means, ranges and standard deviations were calculated for continuous variables while percentages were used for categorical variables. Logistical regressions were performed regarding hypothesis 1 (inverse relationship between the prevalence of Internet and social media use and age of the patient) and 3 (patients with higher education levels and those seeking second opinions would be more likely to utilize the Internet for medical information gathering).

**Table 1:** Demographics and Social Networking

<b>Average Age</b>		58.1y (18 – 88)
<b>Gender</b>	Male	0.423
	Female	0.577
<b>Education</b>	College or Greater	75% (84/112)
	High School or Less	25% (28/112)
<b>Internet</b>	Access at home	0.849
	Access medical information	0.551
<b>Social Networking</b>	Use	56.5% (52.5y avg. age)
	Don't Use	43.5% (63.8y avg. age)
<b>Social Networking Sites</b>	Facebook	0.898
	LinkedIn	0.356
	Twitter	0.0847
	Use of more than one site	0.288
	Use of 3 sites	0.176
<b>Surgeon and Social Networking</b>	Patient access if Surgeon used?	51.2% yes
	Social networking affect surgeon choice?	86.5% no

## Results

### Demographics

One hundred twenty-five consecutive patients were asked to complete the voluntary 9-item survey after informed consent. Ten patients declined to participate. Of the remaining 115 responses, two surveys were discarded due to identifying information being recorded. This left 113 qualified responses available for analysis. Two elected not to record their gender and one did not record their age. The study demographics were 57.7% (64/111) female and 42.3% (47/111) male with an average age of 58.1 years (Range 18–88). One elected not to provide information regarding education, leaving 112 for analysis. The majority of people had some form of college education including 2 and 4-year degrees (60/112, 53.6%) while 21.4% (24/112) had a postgraduate degree. The remaining individuals either had a high school education or equivalent GED (19.6%, 22/112) or less than a high school education (5.36%, 6/112). Six patients elected not to provide information regarding reason for office visit leaving 107 available for analysis. The majority of the patients consisted primarily of new patient visits, which included second opinions and injury (84.1%, 90/107). Specifically, there were 21/107 patients with second opinion listed as one of their reasons for the office visit.

### Internet Use

Of the 113 respondents, 84.9% (96/113) of patients have Internet access at home and when asked if the Internet is used to collect medical information regarding ones' health, 6 elected not to provide this information leaving 55.1% (59/107) admitting to using the Internet to collect medical information. In the setting of this study medical information was broadly defined as: description of surgery, post-surgical complications, post-operative recovery, surgeon rating, and hospital ratings. These patients had an average age of 57.3 years (range 25–84). The remaining patients who do not use the Internet to collect medical information had an average age of 58.7 years (range 21–88). In regard to the hypothesis that prevalence of Internet and social media use and patient age are inversely related we fit the simple logistic regression. The odds ratio was 0.934 with a 95% confidence interval of 0.902–0.967 and p-value = 0.00011.

### Social networking

Of the 113, 5 elected not to provide information regarding social networking use leaving 108 available for analysis. The majority of patients belong to a social networking site (56.5%, 61/108). These patients had an average age of 52.5 years (range 18-76). The remaining 43.5% (47/108) who do not belong to a social networking site had an average age of 63.8 years (range 36–88). When asked what social networking sites one belongs to, two patients failed to provide information leaving 59 available for analysis. Facebook was the most common social networking site at 89.8% (53/59), followed by LinkedIn (35.6%, 21/59) and Twitter (8.47%, 5/59). Interestingly, 28.8% (17/59) admitted to utilizing more than one social networking site with 17.6% (3/17) of patients utilizing three social networking sites. When asked how often these social networks were checked, one patient elected not to provide this information however, the two previous patients who failed to provide information about what social networking sites one belongs to did, leaving 60 available for analysis. The majority of patients (38.3%, 28/60) reported checking social networking sites once a week or less while 33.3% (20/60) checked social networking sites a couple of times a day and 28.3% (17/60) checked a couple times a week.

Of the 113 asked if they would access social networking sites if their surgeon used social networking to provide health information, 7 elected not to provide this information leaving 106 available for analysis. A little over half (51.2%, 55/106) of the patients stated that if the surgeon used social networking, they would access that information. All patients stated that the information they would like the surgeon to provide via these social networking sites would be video or animation of the procedure, updates on the practice, frequently asked questions or some combo thereof. When it came to social networking affecting surgeon choice, 9 elected not to provide this information leaving 104 available for analysis. The vast majority of patients (86.5%, 90/104) stated that social networking use by the surgeon would not affect surgeon choice. For the association between using the Internet to collect medical information and level of education which was separated into patients with  $\leq$  high school education and those with  $>$  high school education, we also fit a simple logistic regression. The odds ratio was 2.045 with a 95% confidence interval of 0.834–5.018. This finding was not statistically significant with  $p$ -value = 0.118. For the association between whether using the Internet to collect medical information and reason for visit which was separated into those presenting for second opinion compared to all other reasons for visit we also fit a simple logistic regression. The odds ratio was 0.856 with a 95% confidence interval of 0.349 – 2.101. This finding was not statistically significant with  $p$ -value = 0.761.

## Discussion

This is the first study, to our knowledge, to evaluate the prevalence of social networking use by patients in a private adult reconstructive office. A previous study evaluated the prevalence of Internet or social media usage in new patients referred to a major academic orthopaedics center across all orthopaedic sub-specialties [10]. The authors found that patients who were seen in the adult reconstruction office were significantly less involved with social networking sites, which was statistically significant when compared to another specialty. As a majority of orthopaedic surgeons are in private practice or employed by community hospitals, the demographics of Internet and social media usage may prove different as compared to large academic centers.

The first hypothesis of this study was that the prevalence of Internet and social media use and age of the patient are inversely related. This study found that 84.9% (96/113) of patients have Internet access at home. The majority of patients also admit to belonging to a social networking site (56.5%, 61/108). These patients had an average age of 52.5 years (range 18–76) while those who did not belong to a social networking site had an average age of 63.8 years (range 36–88). These findings are similar to national statistics which show that approximately 86.9% of the United States population has access to the Internet [2]. However, in contrast to national statistics [3], our study showed that there was a lower prevalence of social media usage (56.5% vs. 74%). Facebook was the most common social networking site reported at 89.8%. Following logistical regression an odds ratio of 0.934 was found with a confidence interval of 0.902 – 0.967. For every year increase in age, the odds of belong to a social networking site are 0.934 times the odds of not belonging to a social networking site.

The second hypothesis was that patients who have used social media before will be more inclined to access information provided online by their physician or be influenced because of a provider's web presence. A little over half (51.2%, 55/106) of the patients stated that

if the surgeon used social networking, they would access that information. All patients stated that the information they would like the surgeon to provide via these social networking sites would be video or animation of the procedure, updates on the practice, frequently asked questions or some combo thereof. The vast majority of patients (86.5%, 90/104) stated that social networking use would not affect their surgeon choice. This highlights an important point that the buildup of a successful practice may still rely on word of mouth and referral systems.

The third hypothesis was that patients with higher educational levels and patients seeking second opinions would be more likely to utilize the Internet for medical information. The majority of people (75%) had some form of college, including 2 and 4-year degrees, or a postgraduate degree and approximately 57.1% admitted to utilizing the Internet for medical information. In contrast to this, 55.5% of patients who either had a high school education or equivalent GED or less than a high school education denied utilizing the Internet for medical information. By separating education levels into those with  $\leq$  high school or GED equivalent education and those  $>$  high school education we were able to demonstrate that those with higher education trended to be more likely to use the Internet to collect medical information. In this study, the majority of the patients consisted primarily of new patient visits, which included second opinions. Specifically, there were 21/107 patients with second opinion listed as one of their reasons for the office visit. It was thought that since patients are trying to gain more knowledge about their condition via a second opinion, the prevalence of Internet use to gather medical information would increase, but this was not the case in this study. Approximately 47.6% of patients admitted to utilizing the Internet to gather medical information on their condition. Following logistical regression, the trend that was found was that you are less likely to use the Internet to collect medical information if you are coming in for a second opinion. This could be due to patients using the second opinion as their route to collect more medical information instead of relying on the Internet or social media. As a whole, 55.1% (59/107), of patients admitted to using the Internet to collect medical information. However, 85% of surgeons have experienced a patient bringing information to an appointment from the Internet [11]. It is of the utmost importance to understand the patient population demographics in order to optimize the success of one's practice.

There are some limitations to this study. First, this study looked at patients in a private adult reconstructive office in an urban setting at a location that has high referrals. This may not represent findings at other private adult reconstructive office locations. Second, only the most common social media sites were questioned. Social media is ever changing and this sample of sites may not provide a true representation. Third, our sample size may not be large enough to detect a true difference since we did not engage in a power analysis. Finally, this was self-reported data that was completed in the office setting so this may have biased results by not allowing the patient to take time in a neutral environment to answer questions fully.

## Conclusions

Social media will continue to play a role in the future of patient care, patient satisfaction, and the distribution of medical information. The manner in which social media is integrated into health care and specifically orthopaedic surgery will continue to evolve. As a greater percentage of the population in the United States has access

to the Internet as well as a larger percentage of patients and physicians begin to use social media the importance of physician and hospital social media use will increase. This study aimed to determine the prevalence of social networking use by patients in an adult reconstruction practice and sought to identify the potential impact of social networking on physician choice. A large majority of patients seen in the office have access to Internet, but only half have used the Internet to collect medical information. Patient's physician choice was not affected by physician social media use. We suggest that orthopaedic surgeons begin to embrace different social media platforms as a way to disseminate medical information and assist in patient education. The findings of this study also suggest that further research is warranted to examine patient use of social networking in the setting of orthopaedic surgery and patient care.

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