

Patient Technology Utilization in Otolaryngology: A Demographic Study

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Abstract

Objective: (1) To characterize current otolaryngology patients' engagement with technology. (2) To determine when and how patients use online medical information to try to self-educate about their symptomatology. (3) To explore how otolaryngologists can use technology in ways to improve healthcare communication and patient education.

Study Design: Cross-sectional study.
Methods: This study was conducted from July 2014 to January 2015 in outpatient adult and pediatric otolaryngology clinics of all subspecialties at a tertiary care hospital. The survey queried respondents on demographics, mobile phone ownership, Internet utilization in their healthcare, and perspectives on EHR. Outcomes' frequencies were calculated and comparisons by demographics and subspecialties were performed. Fisher's Exact Test was used to analyze strength of statistical correlations.

Results: A total of 194 respondents (86 male) participated in the study. Over half (51%) of respondents searched for health information related to their primary concern prior to their clinic visit. Over three quarters of respondents (76%) owned smartphones. In general, respondents who were female, were younger, had higher incomes, and had higher levels of education had statistically greater healthcare-related technology use ($P < .05$). In general, family members of pediatric respondents had higher technology usage versus other subspecialties; conversely, otology respondents demonstrated lower utilization.

Conclusion: Internet and technology use continues to increase in the otolaryngology patient population. Otolaryngologists must continue to improve the quality and accuracy of online medical information. Healthcare professionals can make use of increased patient connectivity to improve healthcare outcomes.

Introduction

Patients now have unprecedented access to online health and healthcare information. Four-fifths of all United States households reported having Internet access at home or through smartphones in 2015 (Horrigan 2015). Greater than two-thirds (68%) of American adults owned smartphones in the same year.

Previous studies have investigated the ways in which otolaryngology patients have used technology in their healthcare. These studies reveal the trend that patients are increasingly searching for online information pertaining to their medical conditions (Rokade 2002, Tassone 2004, Boston 2005, Nogueira 2009, Shaw 2012, Segal 2015). Given how rapidly technology has evolved, study findings from over a decade ago may not necessarily be applicable to current patients' views (Tassone 2004, Boston 2005, Rokade 2002, Ireland (Glynn 2014), Germany (Gurr 2009), Brazil (Nogueira 2009), and Israel (Segal 2015), which may not produce results representative of the typical US patient population. In some studies, caretakers of pediatric patients were the sole survey respondents (Glynn 2014, Nogueira 2009, Boston 2005), who naturally represent a younger subset of the adult population.

The purpose of this study is to characterize the current otolaryngology patient engagement with technology in the United States. This study seeks to determine when and how patients use online medical information to try to self-educate about their symptomatology. This information can guide otolaryngologists in developing technology-based communication and education strategies, as well as assist in anticipating patient expectations.

Methods

Institutional review board approval was obtained at a tertiary care academic institution. This cross-sectional study was conducted from July 2014 to January 2015 in this institution's outpatient adult and pediatric otolaryngology clinics. Survey data was collected from patients of 13 otolaryngologists' clinics in paper form, with all otolaryngology subspecialties included. The questionnaire queried adult respondents and pediatric respondents' family members on demographics, mobile phone ownership, Internet utilization in their healthcare, and perspectives on EHR. Survey questions were carefully structured to reduce bias.

Statistical analysis was performed by an independent biostatistician using SPSS 21.0 software for Windows (SPSS, Inc, Chicago, Illinois). Survey result frequencies were calculated and comparisons by demographics and subspecialties were performed. Fisher's Exact Test was used to analyze strength of statistical correlations.

Results

90.0% had Internet access only at home or in multiple locations.

95.9% had cellphones.

76.2% had smartphones.

79.9% looked up health-related information in general on the Internet.

49.2% looked up health-related information using their cell phones.

21.2% downloaded a cellphone app to specifically track or manage their health.

51.3% had looked up information online related to the primary concern.

6.4% actually used treatments found from online searches for concerns related to their clinic visit.

5.3% participated in online forums or chat rooms pertaining to their primary concern.

39.5% accessed their personal medical information using a secure patient portal or PHR, communicated with a healthcare professional over the Internet.

80.0% would be willing to receive emails or texts with information pertaining to their primary concern.

82.9% in favor of providing patients with the ability to schedule appointments via Internet.

94.2% believed that their medical information was currently kept private and secure in their healthcare institution

62.1% believed there were increased privacy risks associated with EMR when compared to paper charts.

Females: more likely to look up health-related information on the Internet ($P = 0.048$), and use online forums to discuss health issues (8.5% vs. 1.2%, $P = 0.045$). Females were also more likely to look up their medical information using PHRs or patient portals (46.7% vs. 30.1%, $P = 0.025$).

Age, Education, Income: See Figures to Right
Pediatric otolaryngology: more likely to have looked up health-related information online (100% for pediatrics vs. 76.3% for all other subspecialties combined, $P < 0.001$), own smartphones (100% vs 71.8%, $P < 0.001$), and search for health information on their mobile phones (93.3% vs. 44.3%, $P < 0.001$).

Otology/Neurology: less likely to have looked up health information online (60.0% vs. 85.1%, $P = 0.001$), and to look up information pertaining to their primary concern (25.6% vs. 59.1%, $P = 0.005$). They were also less likely to use search engines as health information resources (45.0% vs. 64.3%, $P = 0.030$).

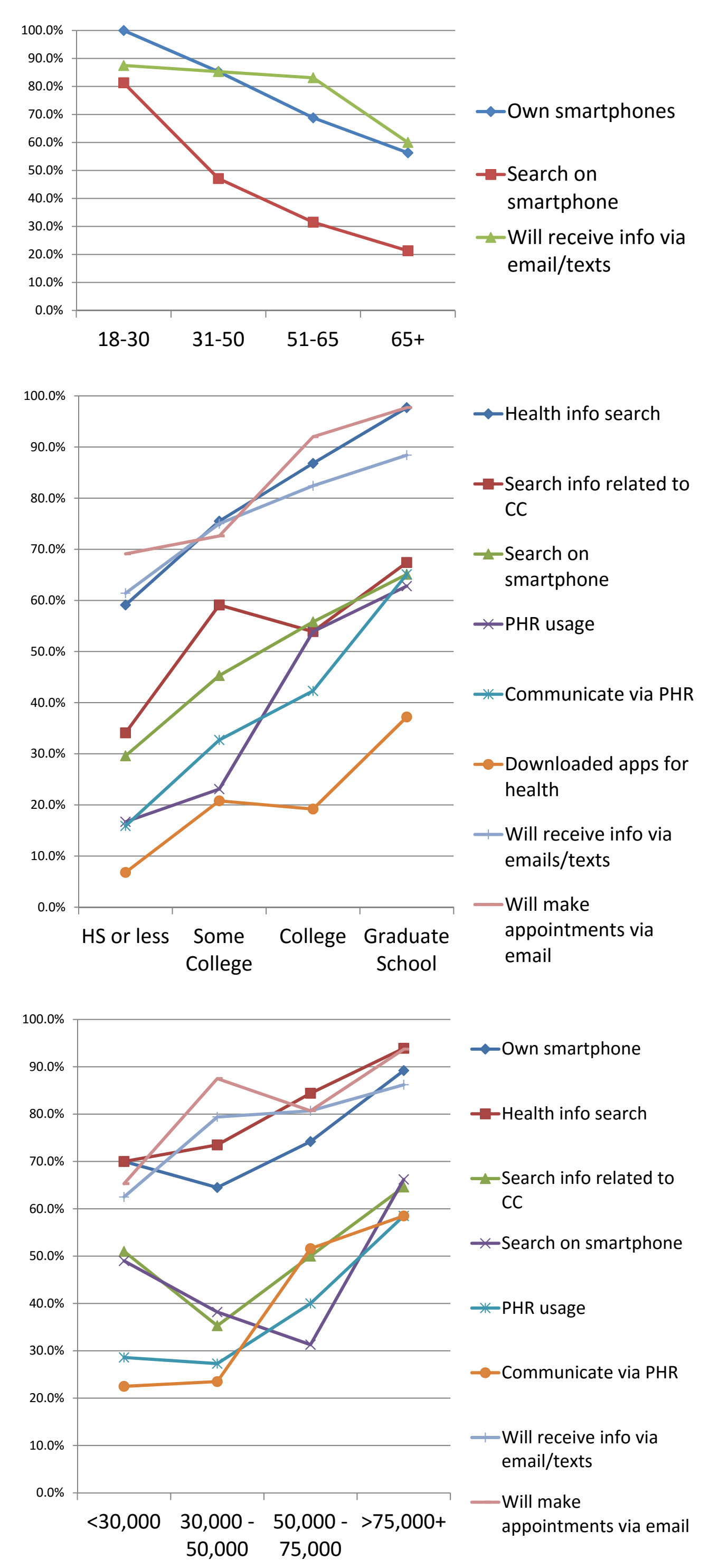
Table 1: Respondent Demographics

	Number of Subjects (N)	Percentage of Total
Sex		
Male	86	44.3
Female	108	55.7
Age, years		
18-30	16	9.8
31-50	34	20.9
51-64	65	39.9
65+	48	29.5
Race		
Caucasian	163	84.5
African-American	24	12.4
Hispanic	4	2.1
Other	2	1
Education		
High School or Less	44	22.8
Some College	53	27.5
College	53	27.5
Graduate School	43	22.3
Household Income		
<30K	50	27.6
30-50K	34	18.8
50-75K	32	17.7
>75K+	65	35.9
Transit time to practice, hours		
<1	138	71.1
1-2	41	21.1
2+	15	7.7
Community Type		
Urban	37	19.4
Suburban	69	36.1
Rural	85	44.5

Table 2: Most Common Online Resources Used

	Number of Subjects (N)	Percentage of Total
Search Engine (Google/Bing/Yahoo)	117	60.3
Wikipedia	9	4.6
Facebook	7	3.6
WebMD	66	34
Medscape	9	4.6
Medline	5	2.6
Mayo Clinic Website	23	11.9
Other	6	3.1

Figures: Significant Trends in Technology Use By Age, Education, Income



Conclusions

❖ Over half (51.3%) of otolaryngology patients now search for health information related to their primary concern prior to their clinic visit. Within otolaryngology, this is a greater proportion than found in older studies (Rokade 2002, Tassone 2004, Shaw 2012), and consistent with more recent study findings (Segal 2015). In our study, almost all of these respondents either agreed or somewhat agreed that the information was understandable and helpful (96 and 93%), which reinforces similar results in previous studies (Glynn 2014, Boston 2005). This type of data can have multiple interpretations, given that the quality of such resources is certainly questionable.

❖ Higher education and income levels had the highest correlation with technology utilization in our study, which is consistent with previous findings. As of 2012, 8% of all individuals had used e-mail for these purposes (Shaw 2012), compared to 39% in our study just three years later. While this may represent a broader paradigm shift in communication in society, it is important that all patients, especially those of lower education levels, are educated on the multiple options to communicate with physicians.

❖ Parents or caretakers of pediatric otolaryngology patients were significantly more likely to search online for medical information (Boston 2005, Nogueira 2009). Conversely, our study found that technology utilization was lower with older otolaryngology patients, which is in agreement with previous studies (Gurr 2009). Barriers to technology use in the elderly are multifactorial, and are especially relevant in an aging US population. These include familiarity, access, physical difficulties with vision, sight, or coordination, as well as cognitive deficiencies (Fischer 2014).

❖ The prevalence of smartphones in our patient population is an opportunity to facilitate communication regarding patients' appointments, surgeries, and general compliance issues. Automated texts and notifications can be easily utilized to remind patients to comply with a myriad of recommendations for their healthcare. To illustrate, we envision a rhinology patient being reminded of their scheduled nasal saline irrigations and intranasal corticosteroid administrations. A pre-surgical patient can be notified to stop their anti-platelet regimen, and be guided through a pre-operative optimization program. Patients who smoke can be sent smoking cessation advice and reminders to quit on a more consistent basis.

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