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Online health information seeking by adults hospitalized for acute coronary syndromes: who looks for information, and who discusses it with healthcare providers?

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Abstract

Objective—To describe characteristics associated with online health information -seeking and discussing resulting information with healthcare providers among adults with acute coronary syndromes (ACS).

Methods—Consecutive patients hospitalized with ACS in 6 hospitals in Massachusetts and Georgia who reported Internet use in the past 4 weeks (online patients) were asked about online health information-seeking and whether they discussed information with healthcare providers. Participants reported demographic and psychosocial characteristics; clinical characteristics were abstracted from medical records. Logistic regression models estimated associations with information-seeking and provider communication.

Results—Online patients (N=1,142) were on average aged 58.8 (SD: 10.6) years, 30.3% female, and 82.8% non-Hispanic white; 56.7% reported online health information-seeking. Patients with

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Informed Consent and Patient Details

I confirm that all patient/personal identifiers have been removed or disguised so that the patient/person(s) described are not identifiable and cannot be identified through the details of the story.

Conflicts of Interest

None.

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higher education and difficulty accessing medical care were more likely to report information-seeking; patients hospitalized with myocardial infarction, and those with impaired health numeracy and limited social networks were less likely. Among information-seekers, 33.9% discussed information with healthcare providers. More education and more frequent online information-seeking were associated with provider discussions.

Conclusion—Over half of online patients with ACS seek health information online, but only 1 in 3 of these discuss information with healthcare providers. Practice implications: Clinician awareness of patient information-seeking may enhance communication including referral to evidence-based online resources.

Keywords

Internet; health information-seeking; patient-provider communication; acute coronary syndromes

1. Introduction

In 2013, nearly three-quarters of adults using the Internet (online adults) in the United States looked online for health information.[1] Among adults generally, online information-seeking differs across groups, such as those defined by sex, age, and or education.[2, 3] It has long been known that the quality of health information online varies widely,[4, 5] and the widespread accessibility of inaccurate and potentially harmful health information on the Internet emphasizes the importance of communication between patients and healthcare providers. Adults with acute coronary syndromes (ACS) represent a patient population with significant ongoing needs for accurate health information.[6, 7] Even when acute events are treated successfully, secondary prevention activities are needed, such as smoking cessation, blood pressure and lipid management, weight loss, increased physical activity, adherence to cardiac medications, and participation in cardiac rehabilitation.[8] A recent study found that across the two years following first acute presentation of ACS, patients reported needing information about medication choices and potential drug-drug interactions, physiology of the disease process, how to handle stress caused by managing their health, and reduction of behavioral risk factors.[6] Another study suggested that patients' desire for information increased in months following hospital discharge when they may have sporadic contact with health care providers.[7] Yet, little is known about the characteristics associated with online health information-seeking among adults who have recently been hospitalized with an acute manifestation of coronary heart disease, and whether they discuss resulting health information with their healthcare team. We aimed to address this gap in the literature by examining patient characteristics associated with online health information-seeking and resulting patient-provider communication about such health information in a cohort of adults hospitalized with acute coronary syndromes (ACS).

This study has two aims. First, we examined demographic, clinical, and psychosocial characteristics associated with online health information-seeking among adults hospitalized with ACS who use the Internet. We hypothesized that younger and more educated patients, those with more active shared decision making preferences, those with lower trust in physicians, and those with higher patient activation would be more likely to report online information-seeking. Second, we examined demographic, clinical, and psychosocial

characteristics associated with discussing health information found online with health care providers. We hypothesized that younger and more educated patients, patients with more active shared decision making preferences, and higher trust in physicians, and higher patient activation will be more likely to report talking to a healthcare provider about the information they found online. Additionally, we hypothesized that patients who more frequently look online for health information will be more likely to discuss health information found online with healthcare providers.

2. Methods

Data for the current study are from the Transitions, Risks, and Actions in Coronary Events: Center for Outcomes Research and Education (TRACE-CORE), the design and methods of which are described in detail elsewhere.[9] Briefly, TRACE-CORE enrolled a prospective cohort of approximately 2,200 adults hospitalized with ACS in 6 community and teaching hospitals in Massachusetts and Georgia in 2011–2013. Potentially eligible participants were identified by daily screening of ACS-related ICD-9 codes from computerized admission logs and lists for cardiac catheterization, percutaneous coronary intervention, and coronary artery bypass graft procedures, and lists of patients with elevated troponin levels at the six study hospitals. Eligibility criteria included diagnosis of ACS consistent with the American College of Cardiology and American Heart Association criteria,[10, 11] 21 years or older, comfort communicating in English or Spanish, and discharged alive from the index hospitalization. Exclusion criteria included development of ACS secondary to another acute condition, positive screen for delirium by the Confusion Assessment Method,[12] documented dementia, pregnancy, imprisonment, plans to move out of the area within 18 months, or admission for palliative care only. Data were collected through a structured in-person interview during hospitalization and abstraction of hospital medical records for the index hospitalization. Institutional Review Boards at each study site approved this study. Participants provided written informed consent.

As part of the baseline interview, participants were asked, “In the past four weeks, have you gone online to access the Internet or World-Wide Web, or to send and receive email?” (yes or no). Online patients (i.e., participants who reported Internet use) were asked “In the past four weeks, how often have you used the Internet to look for advice or information about health or healthcare?” with response options of “everyday”, “several times a week”, “several times in the past four weeks”, “once in the past four weeks”, or “not at all in the past four weeks”. For our first study aim, we dichotomized online health information-seeking (yes vs no), as our interest was in examining which patients engaged in any online health information-seeking. For our second study aim – examination of communication with healthcare providers among patients who sought health information online – we examined frequency of online information-seeking as a 5-level variable. Online patients were also asked “In the past four weeks, have you talked to a doctor, nurse, or other health professional about any kind of health information you have gotten from the Internet?” (yes or no).

Age and sex were abstracted from medical records for the index hospitalization. Participants reported their race, ethnicity, marital status, living situation, education, and smoking status

during the baseline interview. In this interview, participants were also asked “Overall, how difficult is it for you to get medical care when needed?”; responses of “extremely difficult”, “moderately difficult”, or “somewhat difficult” were compared with response of “no problem at all” and “not very difficult”. Participants who answered “How confident are you in filling out medical forms by yourself?” with “not at all confident”, “a little confident”, and “somewhat confident” were considered to have impaired health literacy (versus adequate health literacy: “quite a bit confident” and “extremely confident”).[13] Participants were asked “which of the following numbers represents the biggest risk of getting a disease?” Response options included, “1 in 100”, “1 in 1000”, and “1 in 10” and response options “1%”, “10%”, and “5%”. [14] Participants who did not answer both questions correctly were categorized as having impaired health numeracy. Trust in physicians was measured with a 5-item scale[15] and categorized as low (0–15), medium (16–20), and high trust (21–25). We measured preferences for shared decision making between the patient and provider using four of the 6 questions in the Problem-Solving Decision-Making scale.[16] Three questions related to problem solving and one to decision making; response options were: “the doctor alone” (1), “mostly the doctor” (2), “both equally” (3), “mostly me” (4), or “me alone” (5). Participants whose average of the 3 problem-solving questions was 3 (“both equally” or higher) or whose response to the decision making question was 3 (“both equally” or higher) were considered to have a preference for an active role in decision making.[17] Participants who preferred to hand over responsibility of problem solving and decision making to their doctor were considered to have passive decision making preferences.[17] Patient activation, or knowledge, skills, and confidence to take an active role in self-management, was assessed with the 6-item version of the Patient Activation Measure.[18, 19] Scores were summed, transposed to a 0–100 scale, and then categorized into four levels of activation, from least to most activated; the highest level of activation represents being able to maintain healthy behavior changes even under times of stress. Availability of social support was measured with 5 items from the MOS Social Support Survey[20, 21] and categorized as low social support (< 15) versus adequate social support (>15). Participants completed the Lubben Social Network Scale, a 6-item measure of the size, closeness, and frequency of contacts with one’s social network (family and friends);[22] we categorized participants’ social networks as limited (0–11) versus not limited (12–30).

Clinical characteristics were abstracted from medical records for the index hospitalization. ACS type (ST-elevation myocardial infarction [STEMI], non-ST-elevation myocardial infarction [NSTEMI], or unstable angina) was determined by medical record review of ECG readings, Troponin-I or Troponin-T values, and chief complaint on admission. Participants with documentation of coronary artery bypass graft, percutaneous coronary intervention, myocardial infarction, coronary heart disease (CHD), stent restenosis, and/or stent thrombosis prior to the index hospitalization were considered to have a history of CHD. Abstraction also included documentation of diabetes mellitus, hypertension, hyperlipidemia, and cancer.

2.1 Statistical analysis

As questions about online health information-seeking and provider communication about such information were only asked of patients who reported current use of the Internet, our

main analyses were limited to participants who reported using the Internet in the past 4 weeks. We compared demographic characteristics of participants who reported Internet use versus those that did not using a t-test for age and chi-squared tests for categorical variables. We calculated crude and multivariable-adjusted odds ratios (ORs) and 95% confidence intervals (CIs) to identify participant characteristics associated with online health information-seeking and communication with providers among patients who looked for health information online. We added characteristics that were bivariately associated with each outcome (online health information-seeking, communication with healthcare providers) at the $p < 0.10$ level to the corresponding adjusted model one at a time, in order of largest to smallest crude OR; variables were retained in the model if the 95% CI for the adjusted OR for at least one level of the variable was statistically significant at the 0.05 level. We additionally included study hospital in adjusted regression models to account for confounding by unmeasured differences between study sites. Associations with participant characteristics were very similar in adjusted models that included versus did not include study hospital as a covariate (data not shown). Analyses were conducted in SAS 9.4 (SAS Institute, Inc., Cary, NC).

3. Results

Of the 2,174 TRACE-CORE participants, 56.5% reported Internet use in the previous four weeks (online patients). Online patients were on average 5.4 years younger than patients who did not use the Internet ($p < 0.0001$) and were more likely to be men ($p = 0.0006$) and non-Hispanic white ($p < 0.0001$), had higher education ($p < 0.0001$), and were less likely to have impaired health literacy ($p < 0.0001$) and impaired health numeracy ($p < 0.0001$). We excluded online patients who lived in a nursing home ($n = 1$), and those missing information about online health information-seeking ($n = 1$), communication with healthcare providers about health information found online ($n = 1$), or any of the characteristics examined ($n = 85$), resulting in 1,142 online adults hospitalized with ACS composing the analytic sample for online health information-seeking. Online patients were on average aged 58.8 (SD: 10.6) years; 30.3% female, and 82.8% non-Hispanic white. Additional demographic, clinical, and psychosocial characteristics are shown in Table 1.

Fifty-seven percent (56.7%) of online patients reported looking online for health information during the past four weeks; 3.5% every day, 7.7% several times a week, 26.8% several times over the past four weeks, and 18.7% once over the past four weeks. Participants with greater education (adjusted OR=1.3 for some college or trade school, adjusted OR=2.4 for college education or higher versus high school or less) and those with difficulty accessing medical care (adjusted OR=1.6 not very difficult, adjusted OR=1.7 at least somewhat difficult versus no problem at all) had higher odds of looking online for health information (Table 2). Participants hospitalized with a myocardial infarction (adjusted OR=0.7 NSTEMI, adjusted OR=0.6 STEMI versus unstable angina) and those with impaired health numeracy (adjusted OR=0.6) and limited social networks (adjusted OR=0.6) were less likely to have looked online for health information in the previous 4 weeks (Table 2).

A third (33.9%) of patients who reported seeking health information online reported talking with a healthcare provider about this health information during the past four weeks.

Participants who looked online for health information more often (adjusted OR=3.7 for multiple times per week, adjusted OR=2.4 for several times versus once in the past four weeks) and those with greater education (adjusted OR=1.7 for some college or trade school, adjusted OR=2.2 for college education or higher versus high school or less) had greater odds of discussing health information found online with healthcare providers (Table 3).

4. Discussion and Conclusions

4.1 Discussion

We found that more than half (57%) of adults hospitalized with ACS had used the internet in the previous 4 weeks and, of these, and 57% of these online patients had looked online for health information. More educated patients and those reporting difficulty accessing medical care when needed were more likely to report online health information-seeking, while patients hospitalized with a myocardial infarction and those with impaired health numeracy and limited social support networks were less likely to report online health information-seeking. Of those who sought health information online, a third had discussed this information with healthcare providers, and patient-provider discussions about information found online were more often reported by patients with greater education and those who sought health information online more frequently.

Our finding that 57% of online adults hospitalized with ACS look online for health information is in line with previous research of similarly-aged adults in 2011–2013.[1] Although previous studies have observed strong trends in information-seeking by age, with younger adults being much more likely to seek health information on the Internet than older adults,[1, 2] these differences are most pronounced with wider age ranges,[2] possibly explaining why we did not observe a difference by age as hypothesized. More educated patients are more likely to report online health information-seeking.[1, 2, 23] We also found that participants who had difficulty getting needed medical care had higher odds of looking for health information online,[24] perhaps because they could not access a healthcare provider to answer their health-related questions.

We had hypothesized that patients with more active shared decision making preferences, lower trust in physicians, and higher patient activation would be more likely to report online information-seeking.[25, 26] However, these hypotheses were not supported. One explanation for these findings relates to patients' trust in information found online. A survey of older adults found that they preferred people as information sources; they rated healthcare providers, pharmacists, friends and relatives, and retirement community staff as more trusted sources of information than newspapers, the Internet, television, and radio.[27] Similarly, while previous research suggests that more activated patients are more likely to seek out health information,[26] they may be looking for information and guidance from sources other than the Internet. Future research is needed to explore health information seeking among patients following hospitalization for ACS to better understand how, when, where, from whom, and for what specific conditions they seek online health information.

We found that patients with limited social support networks were less likely to look online for health information. Patients with larger social support networks may have greater

availability of friends or family who help them seek answers to their health and healthcare questions online, refer them to useful or evidence-based online resources, or provide logistic or technical support for these activities.[28–30] In this study, only participants who reported Internet use were asked about online health information-seeking and communication with providers, and it is possible that some of the 43% of TRACE-CORE participants who do not themselves use the Internet may be obtaining health information from online sources through family or friends. Given the prevalence of “surrogate information seeking”,[28] we encourage clinicians to not assume that their “offline” patients do not have access to the Internet as a health information resource, and to phrase questions about health information seeking from other sources broadly.

We found that only a third of patients with ACS who reported online health information-seeking discussed health information they found online with healthcare providers in the past four weeks. We found that the only two participant characteristics associated with discussing online health information with providers were greater education and more frequent online information-seeking. Providers can help patients vet and interpret found health information, but only if patients and providers discuss the health information patients find online and from other sources. Patients report seeking health information online to prepare for a medical visit to be able to more fully participate in decision making and to supplement information provided to them in the visit.[31] Patients may also seek information online after a medical visit when they have low trust in their physician or when the visit made them feel anxious.[25] Other patients look for health information online unrelated to medical visits.[23] Many patients would benefit from guidance in finding high-quality health information online.[32] In a recent study, 77% of online information-seekers started their search at a search engine such as Google or Bing.[1] Myriad websites contain inaccurate or erroneous information about heart disease and related health topics, and even when the information available through search engines is of adequate quality, it may require a high level of health literacy to understand.[33–35] Providers are encouraged to acknowledge patients’ desire for information, probe what information patients have received about their health conditions (whether it be from other healthcare providers, the Internet, or other sources), help patients differentiate between helpful and harmful health advice, and steer patients towards evidence-based online resources.[31, 36]

This study has limitations. We do not have data on what type of health-related information participants sought online, from which websites or online sources they sought this information, whether the online resources were recommended by their healthcare team, nor whether patients used the health information found online in decisions about their health behaviors or medical care. Additionally, we do not have information on whether patients saw a healthcare provider during the past four weeks, and thus the low observed rate of communicating with providers about health information found online may be due to a lack of interactions with the medical system during the past 4 weeks rather than a lack of discussion with providers during a relevant medical visit. However, in either case, only a third of patients in this study talked to a healthcare provider in the past four weeks about health information they found online, highlighting a gap between online health-related activities and the patient’s healthcare. The proportion of U.S. adults with Internet access has increased since data were collected in 2011–2013. In 2011, an estimated 77% of U.S. adults

aged 50–64 years and 46% aged 65 years or older used the Internet, and in 2013, 81% and 56%, respectively.[37] In early 2018, an estimated 87% of U.S. adults aged 50–64 years were online as were 66% of adults aged 65 years or older.[38] This increasing rates of Internet use among middle-aged and older adults suggests the potential for a larger gap between patients' online health information-seeking behaviors and their health care. Research with more contemporary samples may illuminate different or additional participant characteristics associated with online health information-seeking and resulting communication with providers. Finally, more than 80% of our sample was non-Hispanic white, a limitation considering racial/ethnic disparities in cardiovascular disease risk.[39]

4.2 Conclusion

Improving patient-provider communication can improve clinical outcomes in patients with cardiovascular disease.[40] The current study highlights a gap in patient-provider communication – only one third of patients who looked for health information online discussed the information they find with healthcare providers. Future research is needed to explore health information seeking among patients following hospitalization for ACS to better understand how, where, from whom, and for what they seek health information.

4.3 Practice Implications

In the current study, more than half of online patients hospitalized with acute coronary syndromes sought health information on the Internet in the previous four weeks, yet only a third of these patients discussed health information found online with their healthcare providers. Future studies should examine the extent to which patients' patterns of online health information seeking and communication with providers change following hospitalization for acute coronary syndromes as their information needs change as they recover and consider engaging in lifestyle changes and other secondary prevention activities. Previous research has found that providers who seriously consider the information brought up by patients and validate patients' efforts in becoming more informed, engaged health consumers/partners typically engender greater patient satisfaction with patient-provider interactions,[41] and conversely, appearing disinterested or being dismissive of or patronizing to patients initiating conversations about health information found online has been shown to harm the patient-provider relationship[42] and make the patient feel disempowered.[43] Healthcare providers are encouraged to initiate conversations with patients about their health information needs following hospitalization for acute coronary syndrome in a manner that makes the patient feel validated and empowered to take an active role in his/her health and healthcare, and if appropriate, refer patients to online resources with high-quality, evidence-based information, such as the American Heart Association's heart.org.

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Highlights

- 57% of online adults hospitalized with ACS seek health information online
- More education, difficulty accessing care associated with information-seeking
- Impaired numeracy, limited social networks negatively associated with info-seeking
- 34% of information-seekers discussed online health information with providers
- Education and frequent information-seeking associated with provider discussions

Table 1

Demographic, clinical, and psychosocial characteristics of online patients hospitalized for acute coronary syndromes, TRACE-CORE 2011–2013 (N=1,142)

	N (%)
Age	
<55 years	406 (35.6)
55–64 years	388 (34.0)
65 years or older	348 (30.5)
Female	
	346 (30.3)
Race/ethnicity	
Non-Hispanic White	945 (82.8)
Non-Hispanic Black	110 (9.6)
Hispanic/other race/multiracial	87 (7.6)
Married or living as married	
	749 (65.6)
Lives alone	
	212 (18.6)
Education	
High school or GED or less	350 (30.7)
Some college, trade school	377 (33.0)
College/graduate school	415 (36.3)
Difficulty getting needed medical care	
No problem at all	864 (75.7)
Not very difficult	153 (13.4)
Somewhat, moderately, or extremely difficult	125 (11.0)
Smoking status	
Never smoker	386 (33.8)
Former smoker	524 (45.9)
Current smoker	232 (20.3)
Type of ACS	
Unstable angina	336 (29.4)
NSTEMI	593 (51.9)
STEMI	213 (18.7)
Medical history	
Type II diabetes, hypertension, and/or hyperlipidemia	950 (83.1)
CHD	500 (43.8)
Cancer	129 (11.3)
Impaired health literacy	
	276 (24.2)
Impaired health numeracy	
	422 (37.0)

	N (%)
Trust in physicians	
Low trust	261 (22.9)
Medium trust	630 (55.2)
High trust	251 (22.0)
Shared decision making	
	891 (78.0)
Patient activation	
Level 1 (least activated)	200 (17.5)
Level 2	394 (34.5)
Level 3	279 (24.4)
Level 4 (most activated)	269 (23.6)
Low social support	
	155 (13.6)
Limited social network	
	153 (13.4)
Frequency of online health information-seeking	
Not at all in the past 4 weeks	495 (43.4)
Once in the past 4 weeks	213 (18.7)
Several times in the past 4 weeks	306 (26.8)
Several times a week	88 (7.7)
Every day in the past 4 weeks	40 (3.5)

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Table 2

Online health information-seeking in relation to demographic, clinical, and psychosocial characteristics of online patients hospitalized for acute coronary syndromes, TRACE-CORE 2011–2013 (N=1,142)

	Looked online for health information in the past four weeks		
	N (%)	Crude OR (95% CI)	Adjusted* OR (95% CI)
Age			
<55 years	240 (59.1)	1.2 (0.9–1.6)	
55–64 years	216 (55.7)	1.0 (0.8–1.4)	
65 years or older	191 (54.9)	(Reference)	
Sex			
Male	439 (55.2)	0.8 (0.6–1.1)	
Female	208 (60.1)	(Reference)	
Race/ethnicity			
Non-Hispanic White	536 (56.7)	(Reference)	
Non-Hispanic Black	63 (57.3)	1.0 (0.7–1.5)	
Hispanic/other race/multiracial	48 (55.2)	0.9 (0.6–1.5)	
Marital status			
Married or living as married	443 (59.2)	(Reference)	
Single, separated, divorced, or widowed	204 (51.9)	0.7 (0.6–1.0)	
Living situation			
Lives alone	109 (51.4)	0.8 (0.6–1.0)	
Does not live alone	538 (57.9)	(Reference)	
Education			
High school or GED or less	158 (45.1)	(Reference)	(Reference)
Some college, trade school	209 (55.4)	1.5 (1.1–2.0)	1.3 (1.0–1.8)
College/graduate school	280 (67.5)	2.5 (1.9–3.4)	2.4 (1.7–3.2)
Difficulty getting needed medical care			
No problem at all	470 (54.4)	(Reference)	(Reference)
Not very difficult	97 (63.4)	1.5 (1.0–2.1)	1.6 (1.1–2.3)
Somewhat, moderately, or extremely difficult	80 (64.0)	1.5 (1.0–2.2)	1.7 (1.1–2.6)
Smoking status			
Never smoker	227 (58.8)	(Reference)	
Former smoker	305 (58.2)	1.0 (0.7–1.3)	
Current smoker	115 (49.6)	0.7 (0.5–1.0)	
Type of ACS			
Unstable angina	213 (63.4)	(Reference)	(Reference)
NSTEMI	329 (55.5)	0.7 (0.5–0.9)	0.7 (0.5–1.0)
STEMI	105 (49.3)	0.6 (0.4–0.8)	0.6 (0.4–0.9)

	Looked online for health information in the past four weeks		
	N (%)	Crude OR (95% CI)	Adjusted* OR (95% CI)
History of Type II diabetes, hypertension, and/or hyperlipidemia			
Yes	538 (56.6)	1.0 (0.7–1.4)	
No	109 (56.8)	(Reference)	
History of CHD			
Yes	290 (58.0)	1.1 (0.9–1.4)	
No	357 (55.6)	(Reference)	
History of cancer			
Yes	76 (58.9)	1.1 (0.8–1.6)	
No	571 (56.4)	(Reference)	
Health literacy			
Impaired health literacy	141 (51.1)	0.7 (0.6–1.0)	
Adequate health literacy	506 (58.4)	(Reference)	
Health numeracy			
Impaired health numeracy	202 (47.9)	0.6 (0.4–0.7)	0.6 (0.5–0.8)
Adequate health numeracy	445 (61.8)	(Reference)	(Reference)
Trust in physicians			
Low trust	155 (59.4)	(Reference)	
Medium trust	360 (57.1)	0.9 (0.7–1.2)	
High trust	132 (52.3)	0.8 (0.5–1.1)	
Shared decision making			
Passive	134 (53.4)	(Reference)	
Shared	513 (57.6)	1.2 (0.9–1.6)	
Patient activation			
Level 1 (least activated)	115 (57.5)	(Reference)	
Level 2	208 (52.8)	0.8 (0.6–1.2)	
Level 3	166 (59.5)	1.1 (0.8–1.6)	
Level 4 (most activated)	158 (58.7)	1.1 (0.7–1.5)	
Social support			
Low social support	84 (54.2)	0.9 (0.6–1.3)	
Not low social support	563 (57.0)	(Reference)	
Social network			
Limited social network	67 (43.8)	0.5 (0.4–0.8)	0.6 (0.5–0.8)
Not limited social network	580 (58.7)	(Reference)	(Reference)

* Adjusted for other variables in the column plus study hospital

Table 3

Discussing health information found online with a healthcare provider in relation to demographic, clinical, and psychosocial characteristics of online information -seeking patients hospitalized for acute coronary syndromes, TRACE-CORE 2011–2013 (N=647)

	Discussed health information found online with healthcare provider in the past four weeks		
	N (%)	Crude OR (95% CI)	Adjusted* OR (95% CI)
Age			
<55 years	81 (33.8)	1.1 (0.7–1.6)	
55–64 years	77 (35.7)	1.2 (0.8–1.8)	
65 years or older	61 (31.9)	(Reference)	
Sex			
Male	144 (32.8)	0.9 (0.6–1.2)	
Female	75 (36.1)	(Reference)	
Race/ethnicity			
Non-Hispanic White	181 (33.8)	(Reference)	
Non-Hispanic Black	22 (34.9)	1.1 (0.6–1.8)	
Hispanic/other race/multiracial	16 (33.3)	1.0 (0.5–1.8)	
Marital status			
Married or living as married	150 (33.9)	(Reference)	
Single, separated, divorced, or widowed	69 (33.8)	1.0 (0.7–1.4)	
Living situation			
Lives alone	41 (37.6)	1.2 (0.8–1.9)	
Does not live alone	178 (33.1)	(Reference)	
Education			
High school or GED or less	36 (22.8)	(Reference)	(Reference)
Some college, trade school	70 (33.5)	1.7 (1.1–2.7)	1.7 (1.1–2.8)
College/graduate school	113 (40.4)	2.3 (1.5–3.6)	2.2 (1.4–3.5)
Difficulty getting needed medical care			
No problem at all	159 (33.8)	(Reference)	
Not very difficult	34 (35.1)	1.1 (0.7–1.7)	
Somewhat, moderately, or extremely difficult	26 (32.5)	0.9 (0.6–1.6)	
Smoking status			
Never smoker	84 (37.0)	(Reference)	
Former smoker	95 (31.2)	0.8 (0.5–1.1)	
Current smoker	40 (34.8)	0.9 (0.6–1.5)	
Type of ACS			

	Discussed health information found online with healthcare provider in the past four weeks		
	N (%)	Crude OR (95% CI)	Adjusted* OR (95% CI)
Unstable angina	69 (32.4)	(Reference)	
NSTEMI	111 (33.7)	1.1 (0.7–1.5)	
STEMI	39 (37.1)	1.2 (0.8–2.0)	
History of Type II diabetes, hypertension, and/or hyperlipidemia			
Yes	190 (35.3)	1.5 (1.0–2.4)	
No	29 (26.6)	(Reference)	
History of CHD			
Yes	93 (32.1)	0.9 (0.6–1.2)	
No	126 (35.3)	(Reference)	
History of cancer			
Yes	26 (34.2)	1.0 (0.6–1.7)	
No	193 (33.8)	(Reference)	
Health literacy			
Impaired health literacy	43 (30.5)	0.8 (0.6–1.2)	
Adequate health literacy	176 (34.8)	(Reference)	
Health numeracy			
Impaired health numeracy	60 (29.7)	0.8 (0.5–1.1)	
Adequate health numeracy	159 (35.7)	(Reference)	
Trust in physicians			
Low trust	48 (31.0)	(Reference)	
Medium trust	135 (37.5)	1.3 (0.9–2.0)	
High trust	36 (27.3)	0.8 (0.5–1.4)	
Shared decision making			
Passive	39 (29.1)	1.3 (0.9–2.0)	
Shared	180 (35.1)	(Reference)	
Patient activation			
Level 1 (least activated)	42 (36.5)	(Reference)	
Level 2	65 (31.3)	0.8 (0.5–1.3)	
Level 3	60 (36.1)	1.0 (0.6–1.6)	
Level 4 (most activated)	52 (32.9)	0.9 (0.5–1.4)	
Social support			
Low social support	26 (31.0)	0.9 (0.5–1.4)	
Not low social support	193 (34.3)	(Reference)	
Social network			

	Discussed health information found online with healthcare provider in the past four weeks		
	N (%)	Crude OR (95% CI)	Adjusted* OR (95% CI)
Limited social network	20 (29.9)	0.8 (0.5–1.4)	
Not limited social network	199 (34.3)	(Reference)	
Frequency of online health information-seeking during the past 4 weeks			
Multiple times per week	61 (47.7)	3.7 (2.3–6.0)	3.7 (2.3–6.0)
Several times	116 (37.9)	2.5 (1.7–3.7)	2.4 (1.6–3.7)
Once	42 (19.7)	(Reference)	(Reference)

* Adjusted for other variables in the column plus study hospital

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