

Undergraduates' Use of Social Media for Health Information *

대학생들의 소셜 미디어를 이용한 건강정보 추구행태에 관한 연구

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ABSTRACT

The present study surveyed 225 undergraduates to examine their social media use behaviors and their perceptions of usefulness, trustworthiness, and privacy of social media for seeking and sharing health information. 151 respondents reported using social media for health information while 74 reported not using it for health matters. Results show that the most popular medium were social Q&As, followed by blogs and social networking sites. Age, gender, school year, and the presence of a health problem were associated with the social media use behaviors. This study suggests the potential of social media as a desired channel for providing health information to undergraduates.

초 록

본 연구는 225명의 대학생들을 설문조사하여 건강정보 추구를 위한 소셜 미디어의 이용행태와 건강정보원으로써의 소셜 미디어의 유용성, 신뢰성, 개인 프라이버시 침해에 대한 인식을 알아보았다. 151명의 대학생들이 건강정보를 위해 소셜 미디어를 사용하고 있다고 응답한 반면에 74명은 사용하지 않는다고 응답하였다. 가장 인기있는 소셜 미디어는 소셜 Q&A, 블로그, 소셜 네트워킹 사이트의 순이었으며 나이, 성별, 학년, 병의 유무가 소셜 미디어 이용행태와 관련이 있는 것으로 밝혀졌다. 본 연구는 대학생들에게 건강정보를 제공하기 위한 채널로써 소셜 미디어의 가능성을 제시한다.

Keywords: health information, social media, Internet, undergraduates, health consumer
건강정보, 소셜 미디어, 인터넷, 대학생, 건강 소비자

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1. Introduction

As the Internet has become an integral part of our lives, the use of the Internet for health information has grown tremendously in the last decade. According to a recent Pew Internet research report (Fox, 2011), 80% of Internet users have looked online for health information, which is a 25% increase when compared to the 55% in 2000 (Rainie & Fox, 2000). The popularity of the Internet as a source of health information is not surprising any more. More notable is the emergence of social media, which includes a broad spectrum of online communication tools ranging from social networking services such as Facebook through wikis for collaborative content development to two-way mobile messaging platforms that connect people through cell phones (Korda & Itani, 2011), as an important resource for consumers researching health topics. In a survey conducted by the Opinion Research Corporation (Elkin, 2008), 34% of health searchers reported using social media to delve into health and wellness topics, with Wikipedia and online forums and message boards the most important individual tools. The study also indicates that social media holds a particular appeal for 18-to-34 year old health searchers.

Social media provides obvious benefits in the health domain: it provides the means for the capture of alternative views, personal experience, and tacit knowledge that is unlikely to be provided by official information resources and search engines (Anderson & Speed, 2010).

Despite its benefits and increasing use for health

information, studies of social media as a channel for health information have been limited. Recent research mostly explores the potential of social media as a promotion tool from the perspective of healthcare providers to improve communication with health consumers (e.g., Gold et al., 2011). However, very little research has been done on the use of social media for health information from the users' perspective. This paper addresses this gap in the literature by examining how undergraduates use social media for seeking and sharing health information and how they perceive the usefulness, trustworthiness, and privacy of social media for the matters of health. Undergraduate students were particularly selected as a user group in this study because they are known to be major users of social media, with 86% using a social networking site (Smith, Rainie, & Zickuhr, 2011) and they are heavy users of the Internet for health information (Zickuhr, 2010). Understanding undergraduates' use of social media for health information will inform health information specialists about how to reach undergraduates to deliver health information and health literacy education through these new media.

2. Related Literature

Kaplan and Haenlein (2010, p. 61) define social media as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content.” Examples of

social media include blogs, social networking sites (SNS), wikis, video file sharing tools, and more.

The traffic of social media is rapidly increasing in Korea. Facebook usage in Korea is also growing rapidly with 44% of its users within the 25-34 age range and 32% within the 18-24 age range (Yoon, 2011). In addition, Korea is home to one of the largest blogging communities in the world. 42.9% of the Internet users own their blogs and this percentage is especially high (75%) among the 18-29 age range (Choi, 2009).

As social media grows and evolves, its impact is extending to the health domain. Research has reported social media's potential for positive health consequences. First, social media increases social support and interactivity, allowing people to build communities and access their peers' experiences. Second, with the increase of user-generated content, information sharing is seen as more democratic and patient controlled, enabling users to exchange health-related information that they need and therefore, making the information more patient-centered (Carleen, 2009). Third, social media contributes to a viral effect of public health messaging, enabling people to spread their health experiences to others and create behavior change (Christakis & Fowler, 2008). Recognizing such potential of social media, health professionals and organizations have utilized social media to reach broad audiences in social marketing campaigns and empowering consumers in their health-related interactions (Thackeray et al., 2008).

However, previous research has also identified the negative health impacts of social media. Most

of all, the participatory nature of social media entails an open forum for information exchange and thus, increases the possibility of wide dissemination of non-credible and incorrect health information (Chou et al., 2009). In fact, a majority of health information seekers are concerned about getting health information from an unreliable source online (Rainie & Fox, 2000). In a survey conducted by the Pew Research Internet Project, 3% of online health seekers or about 3 million adults said that they or someone they know have been seriously harmed by following health advice or information found online (Fox & Jones, 2009). Banas (2008) indicates that one sub-population of online health seekers at particular risk for such negative impacts is college students because they do not have the skills to properly judge online health information. In Escoffery et al.'s study (2005), only 11% of the surveyed students reported always being able to find the health information they were seeking. To make it worse, despite college students' high confidence in evaluating the credibility of health websites, their actual evaluation skills are not well developed (Kim, Park, & Bozeman, 2011). Therefore, it is important for college students to build and practice online health information literacy skills for positive healthful outcomes. Considering that social media is increasingly being used for health information despite its lack of authentic information and that college students do not have proper online health information literacy skills, it is necessary to help health college students develop appropriate health literacy skills particularly in the context of social media. To do so, the first step should be to understand

how they currently use social media for health information and how they perceive its usefulness and trustworthiness.

Only a paucity of research exists regarding how people use social media for seeking and sharing health information.

Shaw and Johnson (2011) surveyed 57 people with diabetes to examine the online health-seeking behaviors of people with a chronic illness. Their results show that a significant percentage of people with diabetes seek health information online and they frequent popular social networking sites such as Facebook and MySpace. Based on the results, they suggest that social media and in particular, popular social networking sites, may be an appropriate way to reach people to deliver diabetes education. Although diabetes-specific social networking sites are already available, they do not contain the immense number of subscribers like the mainstream popular social networking sites such as Facebook.

On the contrary to Shaw and Johnson's positive prospects for social networking sites as a channel for disseminating health information, Newman et al. (2011) found that Facebook was not an effective venue for interacting with others around health concerns among 14 people who were using Facebook for the purpose of losing weight or managing Type II diabetes. Since people want to maintain a positive identity of themselves as a healthy person in their network, they are selective about what they post on Facebook. When they want to be more open about their struggles and need for help, they turn to more private online health communities where contents

are not linked to one's real-world identity.

Similarly, Morris et al. (2010), who conducted a survey with 624 people, found that many people see social networking sites as inappropriate for questions on overly personal topics such as health, religion, and politics. Interestingly, less frequent users of Facebook or Twitter were more likely to ask health questions to their social networks and the authors speculated that infrequent users might have a different understanding of the norms and etiquette on social networking sites.

Zhang (2012) reveals that undergraduates' intention of use, as well as their actual use of social networking sites for health information, is directly influenced by the four aspects of their perceptions of social networking sites - usefulness of information and people, usability of technology, and subjective norms. While positive sides of these aspects (e.g., credible friends) encourage the use of social networking sites, negative views (e.g., potential security breaches) hinders the use. All in all, her results illustrate that social networking sites are underused by undergraduates and they lack the intention to use them for serious health information.

Although previous research efforts shed some light on why and how people use social media for health information, they have limitations. First, they tend to focus on a single social medium (mostly Facebook) or a single disease (e.g., diabetes) with a small sample size, making it hard to illustrate the broad landscape of social media in the health domain. Second, they mostly took an exploratory and inductive approach, not being able to explain what variables are related

to social media use behaviors for seeking and sharing health information. Therefore, the current study employs a survey method and statistical analysis to systemically identify the variables associated with the use of various social media. Specifically, three research questions are proposed:

- 1) What are the social media use behaviors of undergraduates for seeking and sharing health information?
- 2) What variables are associated with the social media use behaviors?
- 3) What are the perceptions of undergraduates concerning usefulness, trustworthiness, and privacy of social media for health information?

3. Methods

3.1 Data collection

This paper presents the results from a survey conducted by self-administered questionnaires from June 1 to July 20 in 2012. The survey was carried out among undergraduate students in Korea. The authors contacted 7 instructors who were teaching undergraduate courses during spring 2012 at two universities (3 instructors working at a university in Seoul and 4 instructors at another university outside Seoul) and asked them to distribute an invitation email with a link to the online survey questionnaire of this study to students in their classes. An online survey tool,

Qualtrics,¹⁾ was used to accommodate geographically diverse respondent groups. Students volunteered to participate in the study and no compensation was given to them. The questionnaire included a section inquiring about the respondents' demographics and more general health- or Internet use-related questions, as well as more specific questions about the use of social media for health information such as frequency of use, topics searched, and perceived usefulness, trustworthiness, and privacy of social media. Two undergraduate students pre-tested the survey questions and provided feedback on clarity and completeness, which lead to a revision of the questions. The final survey questions are shown in Table 1.

3.2 Data analysis

Statistical analyses were performed using SPSS 20.0 for Windows. Descriptive statistics were employed to describe the demographics of the respondents, the usage patterns of social media for health information, the degree of usefulness, trustworthiness, and privacy of each social medium. Logistic regression and Pearson's correlation were used to identify correlations between respondents-related variables and the social media usage patterns. A one-way ANOVA was calculated to determine whether the degree of usefulness, trustworthiness, and privacy concerns would be different across various social media. Further, Tukey's post-hoc test was conducted to find out between which groups the differences were significant.

1) <http://www.qualtrics.com/>

〈Table 1〉 Survey questions

Section	Survey questions*
Opening questions	<ul style="list-style-type: none"> • Do you seek or share health information using social media? • Why do you not use social media in seeking and sharing health information?***
Social media used for health information	<ul style="list-style-type: none"> • Select all social media you use for health information (among social networking sites, social Q&A, Twitter, and blogs, podcasts).
Usage patterns and perceptions of each social medium**	<ul style="list-style-type: none"> • Which [selected social medium] do you use the most often for health information? • What health-related topics do you read or post about in []? • Who have you "friended", "liked", "circled" or "followed" in [] for health information? • How often do you read or post messages about health in []? • How useful are [] for health information? • How concerned are you with privacy when you use [] for health information? • How much do you trust [] for health information?
Demographics	<ul style="list-style-type: none"> • Gender • Age (open question) • School year
Health status	<ul style="list-style-type: none"> • Perceived health status • Degree of concerns about own health • Ongoing health problem(s) if any (open question)
Internet use	<ul style="list-style-type: none"> • Internet use hours • Frequency of Internet use for health information • Degree of confidence in searching health information online

Note: * The survey questions were adapted from Fox (2011), Lenhart et al. (2010), and Chou et al. (2009).

** This question was asked only when a respondent answered 'no' for the first opening question. ***Once a respondent selected social media he/she used in the previous question, this set of questions were shown for that media only.

4. Result

4.1 Study group characteristics

A total of 225 complete responses were collected and usable for data analysis. Among them, 151 respondents (67.1%) reported that they use social media for seeking and sharing health information, whereas the others (32.9%) do not use social media for health matters. "Not interested" (34%) and "unreliable resources" (25%) were the main reasons of not seeking and sharing health information in social media environments, followed by "privacy concerns" (15%).

The demographic characteristics and other back-

ground information are presented in Table 2. The respondents were predominantly female; 96 (63.6%) female and 55 (36.4%) male students participated in the study. The age ranged from 19 to 37 years (mean age: 21.8 years). A majority of respondents perceived their health status as "somewhat healthy" (60.9%) or "very healthy" (17.2%). However, almost half of respondents (42.3%) were concerned their own health indicating either "very" or "extremely" concerned.

The Internet use for health information was investigated under the assumption that social media use for health information may be related to the frequency use of the Internet and the degree of confidence in searching health information online. More than half

of respondents (58.9%) reported using the Internet searches, 41.4% of respondents indicated “neutral” for health information less often than monthly. and 31.8%, “somewhat confident” while about 23%, Regarding the level of confidence on the Internet “less confident” or “not confident at all.”

<Table 2> Study group characteristics (n = 151)

	N of responses	%
Gender		
Female	96	63.6%
Male	55	36.4%
Age*		
19-20	22	9.8%
21-22	95	42.2%
23-24	61	27.1%
25-26	30	13.3%
27-37	17	7.6%
School year		
Freshman	54	35.8%
Sophomore	29	19.2%
Junior	46	30.5%
Senior	22	14.6%
Perceived health status		
Very healthy	26	17.2%
Somewhat healthy	92	60.9%
Somewhat unhealthy	33	21.9%
Unhealthy	0	0%
Degree of concerns about own health		
Extremely	14	9.3%
Very	65	43%
Moderately	40	26.5%
Slightly	30	19.9%
Not at all	2	1.3%
Frequency of Internet use for health information		
Hourly	0	0%
Daily	15	9.9%
Weekly	23	15.2%
Monthly	24	15.9%
Less often	89	58.9%
Degree of confidence in searching health information online		
Very confident	6	4%
Somewhat confident	48	31.8%
Neutral	62	41.4%
Less confident	31	20.5%
Not confident at all	4	2.6%

Note: 'Age' was asked in an opening question and used as a continuous variable for statistical analysis. 'Age' has been grouped in this table for compact display.

4.2 Social media use

With multiple choices allowed, about half of respondents (48.3%) reported using two out of five types of social media in seeking and sharing health information. Thirty six respondents reported using three (23.7%) and another thirty six respondents (23.7%) reported only one. Six respondents (4.0%) reported using all of the social media proposed in this study.

Social Q&A was the most popular social medium for health information as 88% respondents reported using it (Table 3). Blogs (72%) were the second most popular social medium and it was followed by SNS (35%). Podcasts and Twitter were the least used.

Among social Q&A sites, Naver Knowledge iN was the most popular site (82.8%) and among social networking sites, Facebook (32.6%).

A series of logistic regression analyses were performed to evaluate the possible relation between respondent-related variables (gender, age, perceived health status, degree of concerns about own health, whether a respondent has a health problem, Internet use hours, frequency of Internet use for health information, and degree of confidence in searching

health information online) and the use of each type of social media. A statistically significant association was found between gender and the use of SNS: females were 2.27 times more likely to use SNS than males (Odd Ratio (OR) (-.821) = .440, $p < .05$). There was also a statistically significant association between age and the use of blogs: the younger participants were 1.26 times more likely to use blogs than older participants (OR(-.230) = .795, $p < .05$).

Overall, using social media for seeking and sharing health information was not a frequent activity. A majority of the respondents reported using social media for health information less than once a month regardless of the type of social media (Table 4). However, 15.2% of SNS users, 4.5% of social Q&A users, and 3.7% blog users reported daily use of the selected social media.

The health topics searched by the respondents were diverse, ranging from diet to a specific disease (Table 5). The largest percentage of respondents searched for 'fitness,' followed by 'diet and nutrition' across different types of social media. Few reported interests in topics related to 'violence,' 'sexual abuse,' and 'sexual disease.' While popular and unpopular topics were generally consistent across different types

<Table 3> Social media used for health information (n = 151, multiple choices allowed)

Social Media	No. of Respondents (%)
Social Q&A	133 (88%)
Blogs	109 (72%)
SNS	46 (30%)
Podcasts	20 (13%)
Twitter	6 (4%)

〈Table 4〉 Frequency of use

	Social Q&A (n=133)	Blogs (n=109)	SNS (n=46)	Podcasts (n=20)	Twitter (n=6)
Hourly	1 (0.8%)	1 (0.9%)	4 (8.7%)	0 (0%)	1 (16.7%)
Daily	6 (4.5%)	4 (3.7%)	7 (15.2%)	0 (0%)	0 (0%)
Weekly	19 (14.3%)	17 (15.6%)	8 (17.4%)	3 (15%)	0 (0%)
Monthly	20 (15%)	18 (16.5%)	0 (0%)	2 (10%)	1 (16.7%)
Less often	87 (65.4%)	69 (63.3%)	27 (58.7%)	15 (75%)	4 (63.3%)

〈Table 5〉 Topics searched for in social media (multiple choices allowed)

	Social Q&A (n=133)	Blogs (n=109)	SNS (n=46)	Podcasts (n=20)	Twitter (n=6)
Fitness	89 (66.9%)	81 (74.3%)	32 (69.6%)	16 (80%)	2 (33.35)
Diet and nutrition	80 (60.2%)	77 (70.6%)	21 (45.7%)	12 (60%)	2 (33.35)
Medicine	22 (16.5%)	17 (15.6%)	7 (15.2%)	4 (20%)	1 (16.7%)
Alcohol and drug	17 (12.8%)	12 (11%)	6 (13%)	2 (10%)	0 (0%)
Sexually transmitted disease	4 (3.0%)	2 (1.8%)	3 (6.5%)	0 (0%)	0 (0%)
Sexual abuse	3 (2.3%)	3 (2.8%)	1 (2.2%)	1 (5%)	1 (16.7%)
Mental disease	29 (21.8%)	22 (20.2%)	8 (17.4%)	3 (15%)	2 (33.35)
Violence	4 (3.0%)	4 (3.7%)	1 (2.2%)	3 (15%)	0 (0%)
Specific disease	39 (29.3%)	26 (23.9%)	0 (0%)	1 (5%)	1 (16.7%)
Others	0 (0%)	11 (10.1%)	0 (0%)	2 (10%)	0 (0%)

of social media, in social networking sites, disease-specific information were not searched for.

A series of logistic regression analyses were conducted on each type of social media separately to assess the relation between each of the health topics in Table 5 and the respondent-related variables. There was a statistically significant association between gender and alcohol/drug information: male users of social Q&A were 5.089 times more likely to seek and share alcohol/drug information than female users (OR (1.627) = 5.089, $p < .05$). Male users of blogs were also 3.791 times more likely to seek and share alcohol/drug information than female users (OR (1.379) = 3.791, $p < .05$).

Similarly, there was a statically significant association between gender and diet/nutrition information: female users of SNS were 8 times more likely to seek and share diet/nutrition and fitness information than male users (OR (-2.080) = .125, $p < .05$). Female users of social Q&A were 7.4 times more likely seek and share diet/nutrition and fitness information than male users (OR (-2.005) = .135). Female users of blogs were 7.14 times more likely seek and share diet/nutrition and fitness information than male users (OR (-1.966) = .140).

In addition, a statistically significant association was observed between the presence of a health problem and diet/nutrition information. Among the social

〈Table 6〉 Online relationships (multiple choices allowed)

	Blogs (n=109)	SNS (n=46)	Podcasts (n=20)	Twitter (n=6)
Medical professional	24 (22%)	4 (8.7%)	3 (15%)	2 (33.3%)
Hospital	8 (7.3%)	1 (2.2%)	2 (10%)	0 (0%)
Health support group	1 (0.9%)	1 (2.2%)	0 (0%)	0 (0%)
Individual who have the same problem	38 (34.9%)	1 (2.2%)	3 (15%)	0 (0%)
Others	14 (12.8%)	5 (10.9%)	2 (10%)	0 (0%)
None	40 (36.7%)	36 (78.3%)	12 (60%)	4 (66.7%)

networking site users, those who had a health problem were 5.91 times more likely to seek and share diet/nutrition information than those without a health problem (OR (-1.776) = .169, $p < .05$). Another significant association was found between the degree of concerns about own health and information on specific disease. Among the blog users, the more they were concerned about their own health, the more they were likely to seek and share information on specific disease (OR (.946) = .826, $p < .05$).

Many respondents did not have any online relationship (e.g., being a friend, a follower, or a member of a circle) with health care professionals, health institutions, health support groups, or people with similar health conditions in social media. As many as 34.9% of blog users, however, had an online relationship with a medical professional, 22% with an individual(s) who shared the same health problem, and 12.8% with others (e.g., yoga instructor, personal health trainer) (Table 6).

A series of logistic regression analyses revealed the relation between the online relationships identified in Table 6 and the respondent-related variables. There was a statistically significant association between school year and online relationships, in partic-

ular with medical professionals: among the blog users, the participants in the higher years of university were more likely to follow or visit blogs from medical professionals (OR (1.050) = 2.858, $p < .05$).

4.3 Comparison of the degree of privacy concerns across social media

The means of the degree of privacy concerns with social media for seeking and sharing health information are presented in Table 7.

According to a one-way ANOVA result (Table 8), there were significant differences among the group means.

The one-way ANOVA test does not indicate which groups differ, only that differences exist among the social media user groups. Therefore, the result was supplemented by Tukey's honestly significant difference (HSD) test. As one of the post-hoc tests, Tukey's HSD test confirms where the differences occur between each pair of groups.

In this study, the real distinction among the groups was between SNS and one of social Q&A, blogs, and podcasts (Table 9): the degree of privacy concerns with SNS ($M=3.02$) was significantly higher than

〈Table 7〉 Degree of concerns with privacy

	N	Std. Deviation	Mean*
SNS	46	1.202	3.02
Social Q&A	133	1.002	3.58
Blog	109	.886	3.65
Podcast	20	.686	4.05

Note: * Scale 1: Extremely, 2: Very, 3: Moderately, 4: Slightly, 5: Not at all

〈Table 8〉 One-way ANOVA results for the degree of privacy concerns

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	19.067	3	6.356	6.637	.000
Within Groups	209.102	304	.698		
Total	310.169	307			

〈Table 9〉 Degree of usefulness

	N	Std. Deviation	Mean*
SNS	46	.863	2.48
Social Q&A	133	.692	2.50
Blogs	109	.800	2.48
Podcasts	20	1.070	2.25

Note: * Scale: 1: Very useful; 2: Somewhat useful; 3: Neutral; 4: Less useful; 5 Not useful at all

with social Q&A ($M=3.58$, $p < .05$), blogs ($M=3.65$, $p < .05$), and podcasts ($M=4.05$, $p < .05$).

4.4 Comparison of the degree of usefulness across social media

The means of the degree of usefulness across social

media are shown in Table 9. The respondents perceived social media as somewhat useful or neutral for health information.

A one-way ANOVA test result reveals that the degree of usefulness was not significantly different across social media (Table 10).

〈Table 10〉 One-way ANOVA results for the degree of usefulness

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.068	3	.356	.577	.631
Within Groups	187.669	304	.617		
Total	188.737	307			

4.5 Comparison of the degree of trust across social media

The degree of trustworthiness was not significantly different across the different types of social media, either (Table 11, 12). In general, the respondents moderately trusted social media for health information.

4.6 Correlations among frequency of use, degree of usefulness, privacy concerns, and trustworthiness

Tables 13-16 display the correlations among de-

gree of usefulness, degree of privacy concerns, and degree of trustworthiness in each type of social media. Twitter was excluded from data analysis because the number of Twitter users was too small. Clearly, depending on the type of social media, the relationships among them differ as follows:

- A significant positive relationship was found between usefulness and the degree of trustworthiness across all social media, which means that the higher one perceives the usefulness of certain social media for health information, the more he/she trusts the media.
- The degree of privacy concerns was negatively

〈Table 11〉 Degree of trustworthiness

	N	Std. Deviation	Mean*
SNS	46	.696	2.78
Social Q&A	133	.737	2.66
Blogs	109	.725	2.65
Podcasts	20	.967	2.25

Note: *Scale 1: Extremely, 2: Very, 3: Moderately, 4: Slightly, 5: Not at all

〈Table 12〉 One-way ANOVA results for the degree of trustworthiness

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.027	3	1.342	2.428	.066
Within Groups	168.103	304	.553		
Total	172.130	307			

〈Table 13〉 Correlations among degree of usefulness, degree of trustworthiness, and degree of privacy concerns in SNS

	Degree of usefulness	Degree of privacy concern	Degree of trustworthiness
Degree of usefulness	1	.011	.547**
Degree of privacy concern		1	.006
Degree of trustworthiness			1

Note: **. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

〈Table 14〉 Correlations among degree of usefulness, degree of trustworthiness, and degree of privacy concerns in social Q&A

	Degree of usefulness	Degree of privacy concern	Degree of trustworthiness
Degree of usefulness	1	-.035	.539**
Degree of privacy concern		1	-.174*
Degree of trustworthiness			1

Note: **. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

〈Table 15〉 Correlations among degree of usefulness, degree of trustworthiness, and degree of privacy concerns in blogs

	Degree of usefulness	Degree of privacy concern	Degree of trustworthiness
Degree of usefulness	1	.041	.688**
Degree of privacy concern		1	-.119
Degree of trustworthiness			1

Note: **. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

〈Table 16〉 Correlations among degree of usefulness, degree of trustworthiness, and degree of privacy concerns in podcasts

	Degree of usefulness	Degree of privacy concern	Degree of trustworthiness
Degree of usefulness	1	-.090	.852**
Degree of privacy concern		1	-.258
Degree of trustworthiness			1

Note: **. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

related to the degree of trustworthiness in social Q&A. This implies that in social Q&A sites, the more one is concerned with his/her privacy, the less he/she trusts the media. However, this relationship was not found in other social media.

5. Summary and Discussion

Research on health information seeking behaviors in social media is scarce and focused toward a single type of social media. The current study surveyed 255 undergraduates to examine their social media

use patterns and their perceptions of usefulness, trustworthiness, and privacy of social media for health information. The findings of the study are summarized as follows:

First, social Q&As are the most popular social medium for undergraduates in seeking and sharing health information, followed by blogs and SNS. Social Q&As could be a useful source of health information because undergraduates can easily access a substantial number of health-related questions and answers, and share their personal experience, advice, suggestions, or opinions with others who have similar health problems. However, social Q&As may not be an attractive medium for undergraduates if they want to build online relationship or seek sources of social support because social Q&As lack in relationship-building features. Thus, the heavy use of social Q&As demonstrate that undergraduates frequently 'view' health information without necessarily 'interacting' with other people. Undergraduates who use blogs, however, often become friends with medical professionals or individuals who have similar health problems. Therefore, it can be said that different social media fulfills different needs (e.g., search information vs. interaction with other people) for solving health problems.

Second, in terms of topics searched in social media, fitness, diet/nutrition, and specific disease were identified as key health concerns among undergraduates. This finding indicates that social media is utilized not only for getting and maintaining a healthy life style, but also for dealing with more serious health problems. Interestingly, disease-specific information,

which was a popular topic in other social media, was not sought after in SNS at all. An explanation would be that people do not put serious health problems on SNS because they want to keep a positive identity of themselves within their social system (Newman et al., 2011). Undergraduates may not consider SNS as the best place for finding people who are willing to share their experience with a disease, so they simply do not try to find such information on SNS.

Third, there were undergraduates who reported not using social media for health information seeking. Some of them indicated that they were not interested in seeking health information in social media. Others considered social media as unreliable sources or had privacy concerns. Although there are countless social media resources on health topics that are written by non-specialists, undergraduates should be reminded that legitimate health information providers such as clinics, institutes, or doctors are also active in using social media for distributing credible health information and communicating with health information consumers. In addition, among those who reported using social media for health information, about 23% were not confident or less confident in searching health information online. Therefore, health information service providers, educators, and other professionals need to assist undergraduates in becoming more aware of their health literacy skill limitations. These professionals should instruct undergraduates on building and practicing online health information literacy skills and promote authoritative health information sources specifically in social media and broadly on the Internet so that undergraduates

can identify credible health information from authoritative sources online.

Overall, the findings of this study suggest the potential of social media as a desired health-promotion channel for undergraduates. Knowing which health topics interest undergraduates, which types of social media are frequently used by them, and which variables are associated with social media use for health information would help provide appropriate health information services targeting this group in any library settings such as public libraries and academic libraries. In particular, the results suggest that age, gender, school year, and the presence of a health problem are major influencing factors. These factors should be taken into account when providing tailored health information services to undergraduates.

The current study has several limitations. First, it is important to keep in mind that the current study employed a convenient sample of undergraduates at two universities, which may not be representative of other universities in Korea. Second, compared to female students who made up 63.6% of the sample, there were only 36.4% of male students included in the study. For that reason, health topics popular among male students (e.g., alcohol and drug information) may be underestimated. Third, the number of respondents who reported using podcasts and Twitter was too small compared to that of other social media users. Therefore, Twitter users were excluded for some analysis and the results of the

statistical analysis with the users of podcasts may not be strong enough to draw a significant conclusion.

Future research should be conducted with larger data and ideally, equal gender distribution to ensure generalizability and validity. In-depth research using interviews or other qualitative research methods may be useful in exploring undergraduates' engagement with each type of social media for health information seeking. Finally, the role of social media as health information sources could be investigated in relation to traditional media or other online resources to get a broader understanding of useful health resources among undergraduates.

6. Conclusion

Health information seekers are increasingly turning to social media for health information, but relatively little is known about the use of social media for seeking and sharing health information by undergraduates. Theoretically, the current study provides an understanding of undergraduates' health information seeking behaviors in social media as well as their perceptions of usefulness, trustworthiness, and privacy of social media for health information. Practically, the findings of the current study can inform health information service providers about how to use social media to effectively distribute health information to undergraduates.

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