Identification and Comparison of the Persuasive Elements Present in "Best Answers" to STD-Related Questions on Social Q&A Sites: Yahoo! Answers (United States) Versus Knowledge-iN (South Korea)

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This study examines how consumer-selected best answers on online question-and-answer community platforms—referred to as social Q&A sites—in the United States and South Korea differ in their uses of persuasive elements, including message features and information sources. The best answers about sexually transmitted diseases on Yahoo! Answers in the United States and on Naver Knowledge-iN in South Korea were analyzed (*N* = 600) according to consumer preferences. Regarding message features, best answers in South Korea were more likely to use numeric information, risk information, and optimistic information. Best answers in the United States were more likely to have higher readability than best answers in South Korea. Regarding message sources, expertise was more frequently presented in South Korean best answers, while references were used more in U.S. best answers. The study extends the discussion of consumers' selection of best answers on social Q&A sites to message features and information sources as additional criteria in an international context.

Keywords: social Q&A, persuasion, sexually transmitted diseases, international communication, health communication

The advancement of social media has caused a paradigm shift in health communication. Traditional information consumers passively obtain health messages, but social media users tend to be more proactive, independently developing and sharing health information with other health information consumers (Norman, 2012). People ask and answer personal health questions, engaging with one another in online communities known as social question-and-answer (Q&A) sites or community-driven knowledge sites (Wu & Korfiatis, 2013). Worldwide, consumers seek health information on diverse topics on social Q&A sites such as Yahoo! Answers, Quora, and Naver Knowledge-iN (Gazan, 2011).

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Cases of sexually transmitted diseases (STDs) are increasing in the United States and South Korea, accounting for a large proportion of today's health care costs (Centers for Disease Control and Prevention, 2017; Korea Centers for Disease Control, 2017). Because the Internet has dual virtues of anonymity and the capacity for rapid response, consumers discuss private and sensitive health issues such as STDs on social Q&A sites. People express their distress and anxiety about health problems with expectations of social and emotional support from people like themselves (Y. Yi, 2018; Zhang, 2013). On social Q&A sites, an asker selects one of the answers to his or her question as the "best answer." The best answer is not necessarily the highest-quality answer as determined by an expert. Rather, online best answers are those that are perceived as best answers or those that are preferred by askers (consumers). For consistency with previous studies in social Q&A, the central term of this study is "best answers." This system of selecting the best (most preferred) answers provides a unique opportunity for researchers to analyze features of answers that are clearly favored by users.

Previous studies have examined answers on social Q&A in terms of user evaluation criteria and user preferences for answers (Arai & Handayani, 2013; Bae & Yi, 2017; Gazan, 2011; Jin, Yan, Li, & Li, 2016). Whereas people who ask questions about computers, mathematics, or business tend to assess information provided by experts as high quality, people who ask questions about health tend to place more value on practical information or firsthand experience obtained from laypeople. This is because, unlike health experts, laypeople with direct experience provide nontypical and applicable answers (Blooma, Hoe-Lian Goh, & Yeow-Kuan Chua, 2012; Y. Yi, 2018).

Although many studies have investigated askers' evaluation criteria for answers, few studies have attempted to explain why certain answers are chosen as best answers in terms of persuasion. Previous studies have analyzed answers from social Q&A sites in the United States (Bae & Yi, 2017) and South Korea (Y. Yi, 2018) to find relationships between persuasive elements such as message features and information sources and have identified best answers according to askers in different countries. However, no studies have investigated how best answers differ in different countries. It is important to understand how health information should be developed differently to reflect consumers' preferences in diverse countries, especially for international health practitioners who distribute messages about the same topic to different countries.

International communication studies have compared the United States with Asian countries such as China, Japan, and South Korea to examine differences between Western and Eastern cultures. South Korea shares many cultural and philosophical characteristics with other Asian countries, including Confucianism, communication styles, and dimensions related to persuasion (Hofstede & Bond, 1988; Yum, 1988). Relatively little research examines persuasion on social Q&A platforms. The current study is helpful in understanding differences in persuasion between Western and Eastern cultures. Although the United States and South Korea do not fully represent Western and Eastern cultures, respectively, each country embodies aspects of the culture to which it belongs.

This study extends the discussion of users' selection of best answers to an international context by addressing the following research question: Are there differences in the use of persuasive elements

between social Q&A best answers in the United States and South Korea? Popular social Q&A sites in each country are analyzed to compare characteristics of the answers.

Literature Review

Sexually Transmitted Diseases and Social Q&A

According to the Centers for Disease Control and Prevention (2017), STDs in the United States increased in 2016 to a record high of more than 2 million new cases, accounting for $16 billion in health care costs. These cases consisted of more than 1.5 million cases of chlamydia, 395,216 cases of gonorrhea, and 23,872 cases of syphilis in the United States. In South Korea, the number of examinations for STDs increased by 7.3% in the four years from 2013 to 2016, reaching approximately 370,000 cases in 2016 (Korea Centers for Disease and Control, 2017). Total health care expenses for these examinations amounted to approximately $400 million. Almost 23,000 cases of major STDs were reported in 2016 in South Korea, including 6,702 cases of herpes, 8,438 cases of chlamydia, 1,600 cases of syphilis, 3,615 cases of gonorrhea, and 1,100 cases of HIV (Korea Centers for Disease and Control, 2017).

Because many people consider STDs a private problem, they often look for helpful information about STDs on the Internet to avoid face-to-face conversations about how to resolve symptoms. The Internet is the most popular source of health information in both the United States and South Korea (Fox, 2011; Y. Yi, 2018). Consumers tend to seek health information via standard online outlets where general health information has already been published and is available for consumers. According to a national survey in the United States (Fox, 2011), people use online websites, blogs, and online videos to find information and advice about specific diseases, drugs, treatments, health care providers, and medical facilities. The general population widely addresses health concerns based on others' experience, commentary, and reviews.

Another type of online health information outlet is community platforms, or social Q&A sites, such as Yahoo! Answers, Quora, and Naver Knowledge-iN. In this space, consumers ask questions and share their knowledge or experience with one another. One of the advantages of using social Q&A is that a consumer can ask about personal concerns regarding a specific situation and receive relevant, customized information from other consumers in a relatively short time at no charge. The size of the Internet community enables this quick service. Answers are provided by many other consumers in the public forum of a website rather than by a few experts or publishers from health care institutions (Raban, 2007). With the prevalence of smartphones, the use of social Q&A is increasingly popular, thereby enhancing the speed and convenience of receiving answers (Lee, Kang, Yi, Yi, & Kantola, 2012). Consumers look for information sources that guarantee anonymity, which is conveniently assured on social Q&A sites. With its advantages of speed and anonymity, social Q&A effectively satisfies consumer needs.

Application of the Persuasion Framework to Social Q&A

Persuasion studies have focused on three aspects: message, source, and recipient (Salovey, Schneider, & Apanovitch, 2002). Messages have been analyzed in terms of language, appeal, and structure, and information sources have been analyzed along dimensions of communicator expertise

credibility, trustworthiness, attractiveness, likability, and similarity with the audience. Recipients have been examined in terms of their knowledge, experience, and demographic or dispositional characteristics as they relate to an issue. On social Q&A sites, information about the recipient (user) is typically unavailable and cannot be applied to this study. Thus, only message features and information sources that are presented in online answers are relevant to social Q&A studies.

Although the concept of persuasion has been used in previous analyses of health communication and health information-seeking behaviors (Banks et al., 1995; Frew, Macias, Chan, & Harding, 2009; Lumpkins, 2010; Robinson, Fleming, & Higgs, 2014), only a few studies have applied persuasion to consumers' selection of best answers on social Q&A sites (Bae & Yi, 2017; Y. Yi, 2018). Studies have investigated the persuasive characteristics of best answers on social Q&A sites in a few countries, but no study, to our knowledge, compares how these characteristics differ in different countries. We reviewed previous studies on social Q&A and persuasion to develop the hypotheses of this study.

Message Features

This study adopts the framework of message features and information sources applied in previous research to compare differences in online answers from social Q&A sites in the United States and South Korea (Bae & Yi, 2017). For message features, we examined aspects of numeric information, risk information, optimistic/pessimistic information, readability, and the length of answers.

Numeric Information

Health numeracy is defined as "the capacity to access, process, interpret, communicate, and act on numerical, quantitative, graphical, biostatistics, and probabilistic health information needed to make effective health decisions" (Golbeck, Ahlers-Schmidt, Paschal, & Dismuke, 2005, p. 375). The presentation of numerical health data has been identified as one information quality indicator to discern evidence-based health information that people can use to make informed health decisions (Bunge, Mühlhauser, & Steckelberg, 2010). Although numeracy is one of the main indicators for health literacy, numeric health information has not been a sufficient focus of health information communication. Only a few studies have examined the impact of including numerical data on consumers' preferences in choosing or judging the validity of health information (Bae & Yi, 2017; Gurmankin, Baron, & Armstrong, 2004). These studies indicate that numeric information has positive effects on health information evaluation, thereby emphasizing that people need to understand quantitative information. Numeracy is important because much health information is presented in the form of numbers, such as statistical data on morbidity/mortality, blood pressure levels, medication dosages, and nutrition labels (Gurmankin et al., 2004; Osborne, 2013. Furthermore, the work of Gurmankin et al. (2004) highlights that people who have poor numeracy do not tend to appropriately assess the quality of health information.

The uses of numeric information are different in different countries. In South Korea, antismoking advertisements tend to employ statistical evidence to appeal to adult audiences, whereas U.S. antismoking advertisements tend to focus on testimonial evidence (Ha, Aikat, & Jung, 2015). In fact,

previous research has shown that patients in United States feel uncomfortable with numeric information (Lipkus, Samsa, & Rimer, 2001). Research on health numeracy leads to our first hypothesis:

H1a: *The frequency of using numeric health information in best answers on social Q&A sites is different in the United States than in South Korea.*

Risk Information

Risk information is often employed in health communication. Some studies have examined how different cultures use risk messages (Cheah, 2006; Yu, Seo, & Ji, 2014). Cheah (2006) explores how cultural differences between individualism (a system that emphasizes individuality in loosely organized societies) and collectivism (which tends to identify people as group members in tightly organized social systems) impact risk perceptions of gonorrhea infection. Collectivists are more likely than individualists to be affected by health risk messages that include perceived susceptibility and perceived severity. In South Korea, which has a culture of collectivism, information that health care experts provide on social Q&A sites tends to appeal to questioners with the use of risk messages (Yu et al., 2014). Current research (Y. Yi, 2018) confirms these previous findings. The results of one study show that Koreans select more answers containing risk information as best answers on a social Q&A site. In other words, risk information is more prevalent in best answers than in other answers on social Q&A sites in Korea.

In comparison, with health problems due to caffeine consumption, personal information messages tend to be more effective among European Americans when the messaging highlights personal health risks. Relational information, in contrast, tends to be more appealing to Asian Americans by emphasizing social obligations (Uskul & Oyserman, 2010). Because appeals to fear and humor are common messaging tactics in both U.S. and Korean antismoking TV advertisements (Hong & Lee, 2012), it is important to examine how often risk information is presented in best answers in the United States and South Korea. Research on health risk information leads to our next hypothesis:

H1b: *The frequency of using risk information in best answers on social Q&A sites is different in the United States than in South Korea.*

Optimistic and Pessimistic Information

When confronting uncertain events that provoke anxiety, people want to predict optimistic outcomes and reject pessimistic outlooks that are not desirable (Rains & Tukachinsky, 2015). This tendency applies to health contexts. People with serious health issues (such as cancer or HIV) tend to seek positive information and avoid negative information about their situations as a matter of self-protection (Miller, 1987; Savolainen, 2015). Furthermore, people who search for health answers on social Q&A sites want to obtain emotional support through optimistic messages rather than factual information, because optimistic information encourages people to cope with health problems and tends to relieve stress (Bae & Yi, 2017). On social Q&A sites, Koreans have been observed to prefer optimistic health answers to sexual health questions and have indicated aversion to pessimistic answers, even though pessimistic answers often provide critical facts or knowledge (Y. Yi, 2018). Studies on Yahoo! Answers

confirm these findings (Bae & Yi, 2017; Bowler, Mattern, Jeng, Oh, & He, 2013). People with eating disorders choose best answers that hold hopeful views rather than objective—but bleak—views on treatment and potential outcomes (Bowler et al., 2013). Likewise, best answers contain more optimistic information, and pessimistic information is present more often in randomly selected answers that are not chosen as best answers by askers (Bae & Yi, 2017). These findings about optimism and pessimism in health information lead to our next hypotheses:

H1c: *The frequency of using optimistic information in best answers on social Q&A sites is different in the United States than in South Korea.*

H1d: *The frequency of using pessimistic information in best answers on social Q&A sites is different in the United States than in South Korea.*

Readability

Consumers' ability to read and understand health information is a prerequisite for their ability to correctly evaluate the information. There are several readability assessment tools, such as the Fry readability formula, the Simple Measure of Gobbledygook, and the Flesch-Kincaid grade level formula (Osborne, 2013). Among these readability tests, the Flesch-Kincaid formula presents a readability score as a U.S. grade level. A score of 7.2, for instance, signifies that a seventh-grader would be able to read and understand the material. These metrics ensure that laypeople as well as education professionals can easily judge the readability of diverse resources. In Flesch-Kincaid readability tests, lower scores/grade levels indicate that passages are easier to read, and higher scores mark passages as harder to understand (Walsh & Volsko, 2008).

Because professional health information is often written at a ninth-grade reading level or above, laypeople tend to have difficulty with reading comprehension (Bates, Romina, & Ahmed, 2007; Nielsen-Bohlman, Panzer, & Kindig, 2004). To assess the quality of health information, Reavley et al. (2012) measured the readability of diverse health information sources in printed and online formats. According to their findings, major mental disorder websites, including the Mayo Clinic, WebMD, and the National Health Service (which are provided and maintained by health experts), had readability scores corresponding to higher grade levels than the readability scores of Wikipedia (which is usually edited by nonprofessionals). In addition, the average readability of 161 chronic pain websites was as high as a grade level of 10.9, which supports prior findings (Kaicker, Debono, Dang, Buckley, & Thabane, 2010).

It is notable that findings have been inconsistent regarding readability issues. A study of a local Korean community in Florida indicates that Koreans have higher levels of trust in health information that sounds scientific than in health information that does not sound scientific (Yi et al., 2012). When health information is provided in professional or technical language instead of in plain language, readability scores are higher, and the information is preferred by users. Indeed, answers given by health care professionals tend to have higher readability levels (Y. Yi, 2018; Yu et al., 2014). In the context of other research, these findings indicate that Koreans are more likely than people from Western cultures to prefer health information with higher readability scores.

Many studies conducted in Western contexts have highlighted that health information needs to be easy to read and suitable for audiences with different levels of reading abilities because high readability scores pose a significant challenge to reader comprehension of health information (Chua & Banerjee, 2015; Fong et al., 2014; Frew et al., 2009; Lunt, Hardey, & Mannion, 2010; Osborne, 2013). Ghose and Ipeirotis (2011) confirm these findings, showing that concise and simple language helps people understand information by improving comprehension and clarity of answers. Thus, readable answers (with lower scores corresponding to lower grade levels on readability tests) have been found to be effective in delivering messages (Chua & Banerjee, 2015). Our hypothesis on readability in health information is as follows:

H1e: *Best answers from the U.S. social Q&A site have lower readability scores than best answers from the South Korean social Q&A site.*

Number of Words

The number of words or message length can be used as a simple peripheral cue to persuade people to engage with content (Pratkanis, Greenwald, Leippe, & Baumgardner, 1988; Sanbonmatsu & Kardes, 1988). Several studies have examined users' preferences for the number of words or message length when choosing information with which to interact or to incorporate (Baltas, 2003; Paek, Yu, & Bae, 2009). According to Stvilia et al. (2009), appropriate article length is employed as a heuristic to evaluate quality articles on Wikipedia. Regarding the effects of lengthy messages on the persuasion of users, some studies have found negative effects, whereas some indicate positive effects. Lengthy text in advertising or on health websites tends not to hold people's attention (Baltas, 2003; Sillence, Briggs, Harris, & Fishwick, 2007).

In contrast, a few studies (Chua & Banerjee, 2015; Jeon, Croft, Lee, & Park, 2006) have demonstrated positive effects of lengthy text on quality evaluation. Specifically, Koreans judge health information that provides more content or greater detail as being of superior quality (Yi et al., 2012), which can lead to longer text (McCarthy & Mothersbaugh, 2002). Similarly, social Q&A users in the Unites States prefer answers with greater discourse or more text. Analysis of Yahoo! Answers has shown there to be more words in best answers than in other answers, indicating people's preferences for longer texts (Bae & Yi, 2017). In other words, lengthy answers are identified as being more effective because they deliver richer cognitive content as well as socioemotional support (Bae & Yi, 2017; Chua & Banerjee, 2015). We hypothesize the following effect of message length in health information:

H1f: *The number of words in best answers on social Q&A is different in the United States than in South Korea.*

Information Sources

To test the effects of information sources, previous studies have tested the prevalence of references and the expertise of content providers in best answers (Bae & Yi, 2017; Buhi et al., 2010; Gazan, 2006; Kwon & Na, 2011; Wathen & Burkell, 2002).

Expertise

Expertise, or level of mastery, is indicated by experts' demonstration of their knowledge, skills, or credentials in a particular field. When seeking health information, users tend to judge credibility by considering whether the authors of the information are health care experts (Wathen & Burkell, 2002; Yi et al., 2012). Regardless of cultural differences, previous studies have presented inconsistent findings about whether expertise is a critical factor in users' appraisal of health information (Bae & Yi, 2017; Gazan, 2006; Kwon & Na, 2011; Yi et al., 2012). Studies of Korean communities indicate that people put higher levels of trust in information provided by health professionals and that they perceive expertise as an initial heuristic to assess health information quality (M. Yi, Yoon, Davis, & Lee, 2013; Yi et al., 2012). Likewise, in Western settings, people tend to rely on information provided by reputable health experts (Buhi et al., 2010; Liu, Liu, & Li, 2012; Paek et al., 2009). On Yahoo! Answers, people select more answers that present source expertise as best answers (Bae & Yi, 2017). The persuasive effects of experts as sources of health information are addressed in our next hypothesis:

H2a: The frequency of using expertise in best answers on social Q&A sites is different in the United States than in South Korea.

References

An information source is as important as the way the information is presented (Osborne, 2013). Online health information can be provided by nonexperts, which leads to credibility questions connected to quality issues in health information. To ensure the trustworthiness of online health information, health care organizations and services with authority (e.g., Health and Human Services, MedlinePlus) and health website rating services (e.g., Health on the Net (HON) Foundation's HONcode) provide guidelines to evaluate the quality of online health information. The guidelines have some criteria in common, one of which is verifiability (Paek et al., 2009). Stvilia et al. (2009) found that Korean consumers perceived the presence of references as the main indicator of verifiability. Additional research (Yi et al., 2012) supports the finding that Koreans have higher levels of trust in health information that presents references.

Similarly, studies conducted in Western settings confirm that the presence of references is one of the main indicators of quality in evaluating sexual health information (Buhi et al., 2010), mental health information (Reavley et al., 2012), and health information in general (Lunt et al., 2010). Particularly in social Q&A sites, where laypeople deliver health information, it is essential to provide references so that people can verify the sources, thereby reinforcing the trustworthiness of the information (Shachaf, 2010) In addition, individuals can obtain further information from external sources. On Yahoo! Answers, people prefer information on STDs that includes references to information that does not. In other words, answers that contain references are more likely to be selected as best answers (Bae & Yi, 2017). The inclusion of references in health information is addressed in our final hypothesis.

H2b: *The frequency of using references in best answers on social Q&A sites is different in the United States than in South Korea.*

Method

Sample

To examine how best answers on social Q&A sites in the United States and South Korea differ in terms of message elements and use of information sources, best answers on Yahoo! Answers in the United States and Naver Knowledge-iN in South Korea were collected. Yahoo! Answers is one of the most popular social Q&A platforms in the United States, providing space for people to discuss various issues (Wu & Korfiatis, 2013). Naver Knowledge-iN is the most popular social Q&A site and top search engine (outranking Google) in South Korea (Gazan, 2011). On Yahoo! Answers in the United States, STDs are categorized in a "Health" section. For this study, we collected the first 25 questions in the STD category and their best answers on a monthly basis from October 2013 to September 2014. Naver Knowledge-iN of South Korea does not have a specific category for STDs; thus, we used popular topics on STDs as search keywords— including HIV/AIDS, herpes, gonorrhea, and syphilis—during the same period.

Measures

Answers were analyzed in terms of message elements and the use of information sources. Definitions of each message element and information sources were adopted from a previous study about the evaluation of social Q&A answers (Bae & Yi, 2017). Two coders without knowledge of our research question and hypotheses coded 600 answers based on the working definitions. To assess intercoder reliability, Scott's π was used for the variables coded by a two-category system (present vs. not present), and Krippendorff's α was used for continuous variables, such as the number of words and level of readability. Table 1 presents the definition and intercoder reliability of each variable. Intercoder reliability ranged from 0.83 to 1.00, which surpassed the general requirement of 0.70.

Table 1. Definitions and Intercoder Reliability of Message Elements and Information Sources.

Variable		Scott's π/ Krippendorff's α	Definition
Numeric information	U.S. S. Korea	.97 1	Using numeric information such as numbers and statistics (e.g., "1 out of 4 men in your age group has an STD")
Risk	U.S. S. Korea	.83 .91	Using the possibility or probability of the occurrence of a negative event
Optimistic information	U.S. S. Korea	.84 .89	Optimistic evaluation of the current situation/diagnosis/treatment procedure (e.g., "It is nothing to worry about")
Pessimistic information	U.S. S. Korea	.86 .85	Pessimistic evaluation of the current situation/diagnosis/treatment procedure (e.g., "You have a very serious disease")
Number of words	U.S. S. Korea	1 1	Number of words counted by MS Word
Readability	U.S. S. Korea	1 1	Level of readability measured by MS Word
Expertise	U.S. S. Korea	.89 .94	Demonstration of expertise on health issues (e.g., doctor, nurse)
References	U.S. S. Korea	.92 .91	Specifying a source of information (e.g., Centers for Disease Control and Prevention, WebMD)

Results

For message elements, two different statistical methods were used based on the types of data. The number of words (length of answers) and level of readability were coded as a continuous measure and tested with independent sample *t* tests. The other variables, such as numeric information, risk, optimistic information, and pessimistic information, were coded as a categorical measure (coded as present or not present) and tested with Chi-square tests. Best answers of both countries are shown in Table 2.

Table 2. Chi-Square Test Results for Numeric Information, Risk Information, and Optimistic/Pessimistic Information on Social Q&A Sites in the United States and South Korea.

		United States	South Korea		
		% (*n*)	% (*n*)		Significance
Numeric information	Present	19.7% (59)	58.7% (176)	95.75	.000***
	Not present	80.3% (241)	41.3% (124)		
Risk	Present	7.0% (21)	13.3% (40)	6.59	.014*
	Not present	93.0% (279)	86.7% (260)		
Optimistic	Present	8.7% (26)	17.0% (51)	9.31	.002**
	Not present	91.3% (274)	83.0% (249)		
Pessimistic	Present	8.7% (26)	14.0% (42)	4.25	.053
	Not present	91.3% (274)	86.0% (258)		

* *p* < 0.05. ** *p* < 0.01. *** *p* < 0.001.

In answer to the overall research question, the data reveal differences in the presence of persuasive elements of message features and information sources in best answers on social Q&A sites in the United States and South Korea.

Specific hypotheses were also tested. The results confirm H1a (numeric information), H1b (risk information), and H1c (optimistic information) but fail to confirm H1d (pessimistic information). Best answers in the United States were less likely to include numeric information, χ^2 (*df* = 1, *N* = 300) = 95.75, *p* < .001; risk information, χ^2 (*df* = 1, *N* = 300) = 6.59, *p* < .05; and optimistic information, χ^2 (*df* = 1, *N* = 300) = 9.31, *p* < .01, than Korean best answers. Korean answers were more likely to have pessimistic information, but the difference was only marginally significant, χ^2 (*df* = 1, *N* = 300) = 4.25, *p* < .10.

Table 3 shows the results of levels of readability and number of words (length of answers) tested with independent sample *t* tests.

Table 3. Length and Levels of Readability of Answers on Social Q&A Sites in the United States and South Korea.

	Country	*M*	*SD*	*N*	*t*	*df*	Significance
Number of words	United States	71.98	83.46	300	4.559	598	.000***
	South Korea	117.39	151.0	300			
Readability	United States	5.92	4.12	300	−2.942	598	.003**
	South Korea	5.09	2.59	300			

* *p* < 0.05. ** *p* < 0.01. *** *p* < 0.001.

The study findings do not confirm H1e (readability), but they do confirm H1f (number of words). Surprisingly, the data indicate the opposite result to the expectation of H1e. Readability scores were more likely to be higher in U.S. best answers than in South Korean best answers by an average level of 0.83. In contrast, the data indicate that South Korean best answers were 1.63 times longer than U.S. best answers.

Chi-square tests were also conducted with information sources, including expertise (H2a) and references (H2b). The results of these tests are shown in Table 4.

Table 4. Uses of Expertise and References on Social Q&A Sites in the United States and South Korea.

		United States	South Korea		
		% (*n*)	% (*n*)	χ^2	Significance
Expertise	Present	9.0% (27)	17.3% (52)	9.11	.004**
	Not present	91.0% (273)	82.7% (248)		
References	Present	11.7% (35)	6.0% (18)		
	Not present	88.3% (265)	94.0% (282)	5.98	.021*

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

The data confirm both hypotheses, indicating that U.S. best answers were less likely to show expertise than best answers in South Korea (H2a), even though U.S. best answers had more references than best answers in Korea (H2b).

Discussion

Overall, more message elements are presented more frequently in South Korean best answers than in U.S. best answers. South Korean best answers are more likely to use numeric information, risk information, and optimistic information. Although numeric information, risk information, and optimistic information have been found to be effective in health communication in individual countries in previous studies (Bae & Yi, 2017; Y. Yi, 2018), there have been no direct comparisons of the use of numeric and risk information in the United States and South Korea. One potential reason South Korean best answers present these features more than U.S. best answers is that South Korean best answers tend to be longer than U.S. best answers. Accordingly, best answers in South Korea are more likely to include different message elements.

In contrast, U.S. best answers are more likely to have higher readability scores than South Korean best answers. This finding contrasts with the hypothesis of this study, which assumed higher readability levels in South Korean answers. The higher readability scores of U.S. answers seems to result from greater use of medical terminology and more specific answers as the Flesch-Kincaid formula measures the degree of word complexity and sentence length (Kincaid, Fishburne, Rogers, & Chissom, 1975). One possible reason for this result is that, as explained in the elaboration likelihood model (Petty & Cacioppo, 1986), some askers might not have sufficient background knowledge to fully understand medical explanations and instead rely on peripheral cues in their evaluation of information. The elaboration likelihood model suggests that when people do not have the ability to process (understand) messages, they look for peripheral cues to make

good decisions. Medical terminology may act as a peripheral cue, causing an asker to perceive that an answerer has sufficient knowledge about a health issue and therefore conclude that the answer is a good answer.

Regarding optimistic and pessimistic information, optimistic information is more prevalent in South Korean best answers, but the difference between the two countries in terms of pessimistic information is only marginally significant. Although this study uses a large sample, pessimistic information is presented in only 26 (8.7%) U.S. best answers and in 42 (14%) South Korean best answers. The use of a larger sample, potentially producing more pessimistic information, could cause the difference to be statistically significant.

In the analysis of information sources, it is interesting that best answers in South Korea more transparently demonstrate the answerers' expertise, whereas U.S. best answers are more likely to present sources of information such as journals, websites, magazines, and organizations. The results reflect the importance of different information sources in each country. Previous studies have found that U.S. social Q&A consumers prefer answers with references to answers without references (Bae & Yi, 2017), whereas the presence of references has not been shown to make a difference in the selection of best answers in South Korea (Y. Yi, 2018). When best answers were directly compared with their counterpart random answers to the same questions in these previous studies, references appeared more in best answers than in random answers for a U.S. social Q&A site, while there was no difference between answers on a social Q&A site in South Korea.

Conclusion

This study applies a persuasive communication framework to examine variables that influence consumers' evaluation of health information about STDs on social Q&A sites in different countries. Specifically, the study focuses on differences in uses of persuasive elements, including message features and information sources. In terms of message features, best answers in South Korea are more likely to use numeric information, risk information, and optimistic information. Best answers in the United States are more likely to have higher readability scores than South Korean best answers. As for sources, expertise is more likely to be present in best answers in South Korea, while references are used more in U.S. best answers than in South Korean best answers.

Theoretically, this study extends the discussion of persuasive elements of health information to an international context. It compares the presence of general persuasive elements in best answers on social Q&A sites in the United States and South Korea. We find that these elements are not equally applied in different countries and that their levels of importance are different for users in different countries. The present study confirms the findings of previous international communication studies, particularly in terms of the use of numeric information, expertise, and references. Interestingly, this study also finds new information about the use of other persuasive elements in different countries, such as the use of optimistic information and risk information, the length of information, and the readability of information. By applying a framework of persuasion to an international context, this study offers practical implications, showing that certain types of health information vary in their level of acceptability to people in different countries.

This study's findings will help international health professionals in online Q&A communities make their information more likely to be selected as best answers, which have more exposure among consumers of social Q&A. Also, because the findings here show that people in different countries have different preferences for health information, health information content stands to be more effective if it can be customized for different people in different countries. International health organizations such as the World Health Organization disseminate the same information to people in multiple countries. Based on current findings, optimum health information would provide more information or more emphasis on the expertise of answers or sources for Korean audiences and would provide more references for U.S. audiences.

This study extends the discussion of consumers' selection of best answers on social Q&A sites to message features and information sources as additional criteria in an international context. Future research might contribute to this area of study by investigating other elements of messages (e.g., cognitive vs. affective) and the structure of communication (one-sided vs. two-sided).

Limitations

Although the sample of this study was not small, the use of a larger sample might improve the accuracy of the results. Variables such as risk information, optimistic/pessimistic information, and references were not presented in answers as frequently as other variables. Especially for pessimistic information, which was marginally significant, the use of a larger sample might lead to different results by reducing statistical error. A larger sample provides greater statistical power, thereby reducing the likelihood of type 2 errors. Reducing type 2 errors ensures a greater likelihood of the rejection of null hypotheses, instead finding variables to be statistically significant.

This study uses best answers in different languages for each country because English is not the official language of people in South Korea. This is a common limitation in international communication studies. It is possible that differences in findings between some variables (e.g., length of answers, as measured by the number of words) might have been caused by language differences rather than content differences, especially if one language requires more words than another language to express the same meaning.

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