Cross-cultural Quality Comparison of Online Health Information for Elderly Care on Yahoo! Answers

Wong, Wendy Nga Man, RN
Education Library, University of Hong Kong
Pokfulam Road, Hong Kong
libwendy@hku.hk

Chu, Samuel Kai Wah
Faculty of Education, University of Hong Kong
Pokfulam Road, Hong Kong
samchu@hku.hk

Huang, Hong,
School of Information, University of South Florida
4202 E. Fowler Ave, Tampa, FL 33620, US
honghuang@usf.edu

Hung, Miu Yan, RN
Wollongong Hospital
Loftus Street, Wollongong NSW 2500, Australia
elisha_miu@msn.com

ABSTRACT
Given the increase in global aging population, popularity of social Q&A sites and the level of geriatric health concerns from family caregivers, it raises the uncertainty about the quality of health information on community Q&A sites for family caregivers of elderly. The purpose of this study is to evaluate the quality of geriatric health information on social Questions and Answers (Q&A) sites: Yahoo! Answers from registered nurses’ perspective. A total of 60 question-and-answer sets are retrieved from regional Yahoo! Answers sites, including Australia, Canada, UK & Ireland, US, Hong Kong, Mainland China and Taiwan. A total of 126 English answers and 112 Chinese answers were examined by registered nurses and library professionals. Results show that the overall information quality provided in the Chinese group is relatively poorer than those of English especially in information quality dimensions such as Verifiability, Commercialisation and Completeness. Questioners form both the English and Chinese groups might possibly miss the best pieces of information and advices regarding the health concerns of their elderly family members since about 40% of the best answers they selected did not match health professionals’ picks.

Keywords
Information Quality, Geriatric, Online health information, Social Q&A

INTRODUCTION
With an increasing availability of online information sources, the utilization of social Q&A sites for the purpose of seeking and exchanging health information also becomes popular in recent decades. Contemporarily, less academic sources, such as Yahoo! Answers, is being considered in order to fulfill internet users’ health information need. However, information seekers tend to evaluate the information by their own judgements (Kim, Oh & Oh, 2007). Digital platforms with Q&A style, also known as community/social Q&A sites, become one of the distinct choices for internet users to search information they want. Among them, Yahoo! Answers has become a popular social Q&A site which is either a subject-specific or expertise-based, nor paid-per-answer site according to Gazan’s (2011) research.

A community Q&A site provides a cyber space for information sharing and exchange. Information seekers are given the opportunities to post questions on the sites while providing their answers or knowledge for certain questions they are familiar with. Online users play different and pluralistic roles in community Q&A sites. For instance, some users also voluntarily acted as the contributors or the answerers. Other users can also neither be the questioners nor answerers but treat a community Q&A site as a knowledge database to search information under different domains. The admirations of contributors are gradually gained by accumulating certain numbers of quality contributions which are potentially nominated as best answers by users or questioners.

Family caregivers attempt to seek health information online for their elderly relatives or loved ones. From a couple of surveys, family caregivers are the group of people who actively seek online health information among others in France (Renahy, Parizot & Chauvin, 2010). Similar trends were found in Hong Kong (Leung, 2008), US (Fox & Jones, 2009) and UK (Nicholas, Huntington, Jamali & Williams, 2007). Interestingly, the developments of digital devices...
and apps facilitate this trend. According to Mobile Health 2012 which is part of Pew Internet & American Life Project mentioned above, more than one fifth of smartphone owners (n=3,014) use health apps and more than one third of cell phone owners (n=2,581) who look up online health information are family caregivers (Fox & Duggan, 2012).

Given the popularity of online health information, the quality of health information available on community Q&A sites for family caregivers of elderly should be closely examined. While there are disagreements on the levels of trustworthiness and reliability of health information provided by social Q&A sites even with high popularity like Yahoo! Answers, at the same time, the users might base on their own judgments rather than relying on professionals’ advice to evaluate the health information. In fact, they are not well informed about the gap between health professions’ point of view and users’ point of view toward quality appraisals of the health information they received. As the world-wide growth of ageing population and the increasing popularity of social Q&A sites would probably be continuous trends, family caregivers and their elderly relatives are the groups of people to be harmed potentially by following wrong or misleading information.

LITERATURE REVIEW

Information Quality and Social Q&A Sites

The rapid growth of information technology facilitates health information seekers to adopt the Internet as a source of references. For example, Martin and Choo (2012) reported their findings of the 4 studies which revealed the significant involvement of female family caregivers and the importance of high-level “perceived credibility” (p. 339) and “situational relevance” (p. 342) for adopting online health information from digital platforms with a relatively high level of interaction, such as bulletin boards and chartrooms (Martin & Choo, 2012), as one of the elements of social Q&A sites.

To understand online health information consumers’ information quality judging process from another angle, Library and Information Studies researchers Abrahamson, Fisher, Turner, Durance and Turner (2008) conducted a mixed methods research to discover the barriers of health information on the web lay information mediaries (LIMs)(n=211) encountered and compare with the frequency of those barriers encountered by direct users. LIMs in the literature refer to people who are not health professionals and had experiences on seeking online health information for others. Even it is not a geriatric health-specific research, there were 81% of respondent seeking information on behalf of their family members. Research revealed that LIMs had more difficulties on understanding (1) the technique written or medical jargon, (2) health information provided by healthcare providers, (3) fulfilling their specific information needs and (4) asking further questions based on the information provided. Relating them to quality dimensions, the former 2 points would reflect the importance of levels of readability and professionalism and the latter 2 points indicated the importance of levels of usefulness, relevance and completeness. Therefore, the findings shed light on what quality dimensions would LIMs possibly adopt for information quality judgment.

Fichman (2011) evaluated 1552 transactions, consist of best answers and the alternatives, over a range of topics among 4 social Q&A sites: Askville, WikiAnswers, Wikipedia Reference Desk and Yahoo! Answers according to 3 codes: “accuracy, completeness and verifiability” (p. 480). While Yahoo! Answers was recognized as the most popular social Q&A site, its levels of accuracy for both the best and alternative answers were the lowest among the four. However, the range of topic being covered was not mentioned in the study and the evaluators were described as graduated students with no further details. Additionally, similar research used to compare information quality between Wikipedia Reference Desk and traditional library reference services based on the same 3 quality variables was conducted by information science researchers Shachaf (2009). Results show a comparable level of Information quality between the two services.

Instead of identifying potential harms and describing the gap between professional advisors and lay contributors towards specific topics, other studies tend to focus on predicting the best or high quality answers on social Q&A sites from users’ point of views via a quantitative (Blooma, Goh & Chua, 2010; Bian, Agichtein, Liu & Zha, 2008; Adamic, Zhang, Bakshy & Ackerman, 2008; Shah & Pomerantz, 2010; Kim, Oh & Oh, 2007) or qualitative approach (Harpar, Raban, Refaei & Konstan, 2008; Kim & Oh, 2009) based on similar selection criteria. Certainly, the technical report written by Zhu, Bernhard and Gurevych (2009), who developed a multi-dimensional model for assessing the quality of answer specifically for social Q&A sites, should be considered.

More comprehensive range of criteria, including “accuracy”, “completeness”, “relevance”, “objectiveness”, “source credibility”, “readability”, “politeness”, “confidence”, “empathy” and “efforts”, were employed in Oh, Worrall and Yi’s (2011, p. 2) quantitative research on comparing the quality judgment of Yahoo! Answers questioners with health reference librarians and nurses respectively by evaluating the answers of 400 random health questions. However, the study only indicated that there was an obvious difference of quality judgment between nurses and librarians, instead of nurses and questioners. Medical practitioners took part in the GeriatricWeb Project which ensured that they can assess overall high quality, in terms of the levels of credibility and accuracy of Internet geriatric health information (IGHI) resources (Hajjar, Gable & Jenkinson et. al., 2005). However, very few studies focused
on quality online geriatric health for caregivers as health information consumers.

Cross Cultural Studies and Social Q&A

Culture is related to the shared symbolic elements that are reflected by group of people/communities’ adopted behavior and social orientation styles (Geertz, 1973; Kroeber & Kluckhom, 1952; Swidler, 1986). Swidler (1986) further defined these elements as language, stories, rituals, norms, beliefs and values. Research found that East Asians are relatively field-dependent, experiential knowledge-oriented with dialectical style of reasoning whereas Westerner tend to be more field-independent and focus on details with an analytic style of reasoning using formal logic (Nisbett, Peng, Choi & Norenzayan, 2001; Varnum, Grossmann, Kitayama & Nisbett, 2010). Thus, the former tend to correspond with the idea of ‘collectivism’ (p. 10) and the latter are tends to match with the idea of ‘individualism’ (p. 10) in terms of social orientation patterns (Varnum, Grossmann, Kitayama & Nisbett, 2010).

In terms of information studied-related cross-cultural research, they are relatively inconsistent in research context. Huang, Chu, and Chen (2014) reported the cultural differences between English-speaking and Chinese speaking librarians and users when using social medial tools. Meyer (2009) studied the information seeking behaviour differences between literate and indigenous people in South Africa. While Yi, Stvilia and Mon (2011) conducted research on cultural influences on seeking quality health information from a Korean community in American, Li, Agarwal, Hadidi and He’s (2012) study compared the quality of online health information between America, a developed country and developing countries such as China and India in order to improve health information portals in developing countries. The above research did not further define the cultures involved in their studies but presented that culture did play a role in topics related to information studies. However, community Q&A sites were not a focus in the research.

There were a few cross-cultural studies in relation to non-academic knowledge sharing online communities and social Q&A sites. Kayan, Fussell and Setlock (2006) studied the use of Instant Messaging (IM) in terms of cultural differences between Asians, Indian and North Americans. However, the findings mainly showed the differences of the frequency use of IM features among people of different cultures. Stvilia, Al-Faraj and Yi (2009) explored cultural similarities toward IQ evaluation across Arabic, English and Korean Wikipedia communities. While the researchers were able to tell the level of cultural similarities by calculating the percentage of pieces of information with different versions based on the languages and comparing the number of editors across pages in different languages, they also support that the role of contributors can further be explored in relation to the understanding of cultural issues of online IQ evaluation (Stvilia, Al-Faraj & Yi, 2009).

In addition, Yang, Wei, Ackerman and Adamic (2010) studied the user participation patterns among Yahoo! Answers, Baidu Knows, and Naver Knowledge-in which represented Westerners, Chinese and South Koreans respectively. The research revealed diversity in user participation patterns. However, the cultural factors involved were not precisely defined. In addition, Yang, Morris, Adamic and Ackerman (2011) conducted a survey to explore the impact of cultural factors on social Q&A users’ behaviours in terms of information needs of questioners and motivations of questioners and answerers. The findings of this study reinforced that cognitive patterns and social orientations are cultural characteristics related to information exchange and quality judgment processes.

RESEARCH GAP

Base on the literature review, while a number of studies concerned about the mix quality of health information available on the Web, there are mainly guidelines or quality dimensions developed for assessing the information quality of health-related web pages that would not fit well for assessing the information quality in the setting of social Q&A sites. In terms of research on social Q&A, there is very limited studies involving the experts’ perspective to compare with other users’ toward the levels of IQ and the selection of best answers on the setting of Yahoo! Answers. Additionally, while many of the research had been conducted to assess the IQ across multi-disciplinary available on a social Q&A setting via a quantitative approach, only a few studies focus on health information but they do not have a geriatric health focus nor concerning family caregivers’ point of view.

Finally, cross-cultural studies related to family caregivers are more concerned about their stress coping strategies than the quality of online health information they may frequently access. Furthermore, there are very limited numbers of contrasting cross-cultural comparative studies conducting on a social Q&A setting based on regional users’ mother languages. To address the above identified research gap, this study evaluated the quality of geriatric health information on social Q&A sites from health professions’ perspective. The research questions to be answered in this paper are as follows:

- Q1: What is the overall quality of the geriatric health information in Yahoo! Answers?
- Q2: What are the similarities and differences in the quality of the answers available on selected Chinese and English sites of Yahoo! Answers?
RESEARCH METHOD

Instruments

The researchers identified eight dimensions of information quality via literature analysis (Table 1). Information quality assessment would start with text reading (qualitative approach) followed by a quantitative assessment via the use of rating with poor = 1, fair = 2, and good = 3. The information quality dimensions, included in the rubric are consolidated and developed according to previous research. These information quality dimensions being selected and employed in this research are specifically valuable for accessing online health information in social Q&A setting (Table 1).

With regard to quality standards, an answer with (1) a total score of 0 to 11 or (2) a total score of 12 to 17 with 4 or more information quality dimensions rated 1 is considered a poor answer. An answer with (1) a total score of 12-17 with less than 4 information quality dimension(s) rated 1 or (2) a total score of 18 or more with 2 or more information quality dimension(s) rated 1 is considered a fair answer. An answer with a total score of 18 or more without information quality dimension rated 1 is considered a good answer.

Sampling

Prior to data collection, formal ethical approval for this study was granted by the Faculty Research Ethics Committee, Faculty of Education, The University of Hong Kong. Data is collected from certain regional sites of Yahoo! Answers. In order to achieve the purposes of the research, certain Chinese sites and English sites are selected for data collection. Sites of Hong Kong (n=10), Mainland China (n=10) and Taiwan (n=10), with users of mainly Eastern cultures, as well as sites of Australia (n=8), Canada (n=7), UK & Ireland (n=8) and US (n=7), with users of mainly Western culture, are included in this study. Table 2 shows an example of questions and number of answers retrieved in a regional site. To maintain a sense of balance, an equal number of resolved question-and-answers sets are retrieved from both language groups. Thirty on each group with a total of 60 question-and-answer sets are collected across different culture groups. The selection criteria for the questions are listed below:

1. Geriatric health-related questions;
2. Disease/health condition-based questions;
3. Each questions with at least 2 corresponding answers;
4. Questioners are family caregivers of elderly (indicated by the questioners’ message);
5. Limited to resolved questions only;
6. Best answers had been nominated by the questioners.

For English sites, the searching keywords are ‘elderly’, ‘grandmother’ and ‘grandfather’. The advance search feature is used for refining the search. Three single searches for each regional site are conducted by using those 3 keywords respectively and the search was refined by selecting ‘Health’ under categories and ‘at least three’ under number of answer followed by specific countries/regions. From Chinese sites, the same keywords (typing in Chinese) are used for searching on each regional site.

Data Analysis

Prior to the analysis process, users’ personal details, such as registered names, indications of health professional identity (except stated in column of references/sources) and information regarding to the participating rankings under Yahoo! Answers system are eliminated in order to maintain fairness and keep the research focus on studying only the contents of information. Information quality of the subjects is evaluated quantitatively. Each question and each corresponding answer is assigned a unique identification number. Researchers read the texts and judge the information quality of each corresponding answers based on the 8 quality dimensions.

Based on the total points of each subject gained and the grading system on rubric, subjects are categorized into 3 groups in Chinese and English respectively: (1) good information quality in Chinese, (2) fair information quality in Chinese and (3) poor information quality in Chinese as well as (1) good information quality in English; (2) fair information quality in Chinese and (3) poor information quality in English. Percentages are calculated to show the proportion among each language group. The comparisons of information quality are made within and between the two groups.

Levels of Chinese and English questioners’ judgment of information quality are assessed quantitatively. The results are revealed by making a comparison between the choice of questioners (layman) and researchers as nursing professionals with respect to the best answer selection among each question-and-answer set. According to the selection criteria, each question-and-answer set must have the best answers nominated by the corresponding questioners. Therefore, the choices of questioners are known. The choice of nursing professionals is determined according to the results of information quality assessment. The answer with the highest points among each question-and-answer set is considered as the best answer chosen by researchers.
<table>
<thead>
<tr>
<th>Information Quality Dimensions</th>
<th>Low=1</th>
<th>Fair=2</th>
<th>Good=3</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accuracy</strong></td>
<td>No / very limited health info is provided/ contain misleading/ harmful/ wrong information</td>
<td>Without misleading/ harmful/ wrong information; may/ may not contain evidence-based information</td>
<td>Tend to be evidence-based and/ factual info and tend to be objective/ rational practice</td>
<td>Eysenbach, Powell, Kuss &amp; Sa, 2002; Kunst &amp; Khan, 2002; Oh, Worrall &amp; Yi, 2011; Rieh &amp; Danielson, 2007; Shachaf, 2009</td>
</tr>
<tr>
<td><strong>Completeness</strong></td>
<td>Only single limited aspect of questions to be addressed</td>
<td>Majority of aspects to be addressed/ discussed with/ without details</td>
<td>Provide detailed info &amp; answer all aspects of the question</td>
<td>Abrahamson, Fisher, Turner, Durrance &amp; Turner, 2008; Eysenbach, Powell, Kuss &amp; Sa, 2002; Fichman, 2011.</td>
</tr>
<tr>
<td><strong>Relevance</strong></td>
<td>Irrelevant info. at all/no/little relevant information provided</td>
<td>Majority of information is relevant; may contain little amount of irrelevant information</td>
<td>All info. provided is relevant for answering the question</td>
<td>Bliemel &amp; Hassanein, 2006; Oh, Worrall &amp; Yi, 2011; Stvilia, Mon &amp; Yi, 2009; Zhu, Bernhard &amp; Gurevych, 2009</td>
</tr>
<tr>
<td><strong>Readability</strong></td>
<td>Cannot understand /less understandable for layman / poor expression/ poor presentation/ mainly duplicate information</td>
<td>Overall understandable but contain a few spelling and/ grammatical mistakes and/ improper wordings</td>
<td>Very easy to read/ logical development by paragraphs</td>
<td>Bliemel &amp; Hassanein, 2006; Childs, 2004; Kim, 2010; Marshall &amp; Williams, 2006; Oh, Worrall &amp; Yi, 2011; Zhu, Bernhard &amp; Gurevych, 2009</td>
</tr>
<tr>
<td><strong>Verifiability</strong></td>
<td>Little or no idea where the source(s)/information came from/ mentioned where the source(s)/information came form but may not be a reliable one</td>
<td>Personal/relatives’ experiences with/without other reliable sources to support the answer</td>
<td>State clearly the source(s)/info based on including self-referencing and/provide external source(s) which is/are accessible and reliable</td>
<td>Fichman, 2011; Gagliardi &amp; Jadad, 2002; Kim, 2010; Marshall &amp; Williams, 2006; Oh, Worrall &amp; Yi, 2011; Rieh &amp; Danielson, 2007; Shachaf, 2009; Stvilia, Mon &amp; Yi, 2009; Williams, Nicholas, Huntington &amp; McLean, 2002a</td>
</tr>
<tr>
<td><strong>Professional Advices</strong></td>
<td>No professional advices provided/low level of professional advices</td>
<td>Mainly relatives’/patients’ experience but with some professional advices to be recalled OR provide info that a health profession is most likely to provide in response to the question</td>
<td>Share/recall mainly professional advices by a third person OR health profession(s)</td>
<td>Abrahamson, Fisher, Turner, Durrance &amp; Turner, 2008; Abrahamson &amp; Rubin, 2012; Bliemel &amp; Hassanein, 2006; Guada &amp; Venable, 2011; Kim, 2010; Stvilia, Mon &amp; Yi, 2009; Zhu, Bernhard &amp; Gurevych, 2009;</td>
</tr>
<tr>
<td><strong>Usefulness</strong></td>
<td>Useless info./contain little useful info./ dead link(s) (All or majority) / potential wrong direction/ referrals given/ potential harmful practice</td>
<td>Overall useful information/ provide a sense of direction/ making correct referrals for seeking further info</td>
<td>Very useful information with strategic/ alternative plan(s) suggested/ problem-solving approach/ reliable practical information</td>
<td>Abrahamson, Fisher, Turner, Durrance &amp; Turner, 2008; Kim, 2010; Zhu, Bernhard &amp; Gurevych, 2009</td>
</tr>
<tr>
<td><strong>Commercialisation</strong></td>
<td>Provide relevant info./links/contact details in the purpose of selling products/services without much elaboration</td>
<td>Provide info. mainly and/ provide reasonable explanation of why the products/services could be helpful to improve situation(s)/condition(s)</td>
<td>No evidence of selling products</td>
<td>Adams, 2010; Gagliardi &amp; Jadad, 2002; Kunst &amp; Khan, 2002; Oh, Worrall &amp; Yi, 2011; Weitzman, Cole, Kaci &amp; Mandl, 2011; Williams, Nicholas, Huntington &amp; McLean, 2002b</td>
</tr>
</tbody>
</table>
Table 2. Example of questions/statements (n=8) and numbers of answers (n=30) with various quality retrieved from Australia’s Yahoo! Answers.

<table>
<thead>
<tr>
<th>Site of Australia</th>
<th>Question/Statement</th>
<th>Good quality</th>
<th>Fair quality</th>
<th>Poor Quality</th>
<th>no. Ans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1. Australia</td>
<td>I’m really worried. My grandma has Colon cancer in the 3rd Stage. She has the tumor out, but what next?</td>
<td>2 (67%)</td>
<td>0</td>
<td>1 (33%)</td>
<td>3</td>
</tr>
<tr>
<td>Q2. Australia</td>
<td>Anyone know an effective treatment for Shingles? (Ask for elderly father)*</td>
<td>2 (33%)</td>
<td>3 (40%)</td>
<td>1 (17%)</td>
<td>6</td>
</tr>
<tr>
<td>Q3. Australia</td>
<td>Most heart attacks survived? (Ask for grandmother)*</td>
<td>1 (50%)</td>
<td>0</td>
<td>1 (50%)</td>
<td>2</td>
</tr>
<tr>
<td>Q4. Australia</td>
<td>Gastro naso tube feeding elderly? What is the rationale of inserting nasal gastric tube for my elderly mother?</td>
<td>1 (33%)</td>
<td>0</td>
<td>2 (67%)</td>
<td>3</td>
</tr>
<tr>
<td>Q5. Australia</td>
<td>I would like to know what is the best treatment for elderly who are suffering from type 2 diabetes? (Ask for father)*</td>
<td>0</td>
<td>1 (25%)</td>
<td>3 (75%)</td>
<td>4</td>
</tr>
<tr>
<td>Q6. Australia</td>
<td>My mom (85 years old) just went on a beta blocker - her heart rate dropped to 44 - BP 109 over 52 - should I worry?</td>
<td>2 (40%)</td>
<td>2 (40%)</td>
<td>1 (20%)</td>
<td>5</td>
</tr>
<tr>
<td>Q7. Australia</td>
<td>My 87 y/o father gets itching all over his body each winter. How can he relieve itching? (Ask for 79-year-old parent)*</td>
<td>4 (80%)</td>
<td>1 (20%)</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Q8. Australia</td>
<td>Anyone have experience with vascular dementia? (Ask for 79-year-old parent)*</td>
<td>2 (100%)</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

When there are two or more answers with the same points in total among answers in a set, the one with less information quality dimension rated 1 is considered as the best answer. If there are answers with the same points in total and in individual information quality dimensions, within the range of good/fair quality they are all considered as the best possible answer form the professional point of view. Therefore, the total number of best number from the primary evaluator is not necessarily equal to the total of questions. Consequently, the percentages of match between (1) Chinese questioners’ choice and researchers’ choice as well as (2) English questioners’ choice and researchers’ choice are calculated respectively.

Prior to the analysis process, users’ personal details, such as registered names, indications of health professional identity (except stated in column of references/sources) and information regarding to the participating rankings under Yahoo! Answers system are eliminated in order to maintain fairness and keep the research focus on studying only the contents of information.

In addition, 20% of the samples are reviewed by a second evaluator using the same rubric and the texts are also coded by a second coder. The second evaluator/coder is a registered nurse who has clinical nursing experiences and is capable of reading, writing and communicating in Chinese and English. When comparing the ratings of primary and second evaluator, there is an 83% inter-rater reliability.

**FINDINGS**

**Quality of Yahoo! Answers Elderly Care Information**

Among the collected elderly care related questions in Yahoo! Answer in either English or Chinese sites, the total number of answers (Chinese answers: n=112; English answers: n=126) were found to respond to questions in Chinese (n=30) and English (n=30). Table 3 showed the comparison between the two in terms of the proportions of answers with various quality in English and Chinese Yahoo! Answers. The results indicated that almost half of the answers were marked as low quality in either English or Chinese Yahoo! Answer sites.

As shown in Table 3, English and Chinese answers with fair quality accounts for a similar proportion as about one-fourth over their totals. Additionally, answers with poor quality accounts for the largest proportions among both English and Chinese data. Conversely, obvious differences are shown by the proportions of Chinese answers with good (20%) and poor (53%) quality. Among the English data, there is a closer range differences between the percentages of good and poor answers as compared to those in Chinese. However, there is still a higher percentage of poor answers (41%) than the good ones (34%) in the English sites. The results indicates that there are more poor quality answers than good ones in both the English and Chinese Yahoo! Answer sites as measured by the quality standards under this study and the health information quality in Chinese are relatively lower than those in English in the case of social Q&A sites.

Table 3. Proportion of answers with varies quality among English and Chinese based Yahoo! Answer sites.

<table>
<thead>
<tr>
<th></th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Total answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>English sites</td>
<td>51 (41%)</td>
<td>32 (25%)</td>
<td>43 (34%)</td>
<td>126</td>
</tr>
<tr>
<td>Chinese sites</td>
<td>59 (53%)</td>
<td>32 (27%)</td>
<td>21 (20%)</td>
<td>112</td>
</tr>
</tbody>
</table>

Table 4 shows the best answers and their quality assessment by both the questioners and primary examiners as registered nurses. The results indicate that the quality of the best answers from English groups (Avg. score: 19.1) are overall better than the quality of Chinese best answers (Avg. score: 18.2). More importantly, the results also indicate that about 40% of questioners from both language groups are not capable of identifying the best choice(s) among answers. In other words, the questioners are possibly missing the best pieces of
information and advices regarding the health concerns of their elderly family members.

Table 4. The best possible answers among English and Chinese sites, their quality evaluations, and the number of matches with health professional (researchers) choices.

<table>
<thead>
<tr>
<th></th>
<th>Average score</th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Match with experts</th>
<th>No. best Ans</th>
</tr>
</thead>
<tbody>
<tr>
<td>English sites</td>
<td>19.1</td>
<td>0</td>
<td>2 (6%)</td>
<td>29 (94%)</td>
<td>18 (58%)</td>
<td>31</td>
</tr>
<tr>
<td>Chinese sites</td>
<td>18.2</td>
<td>2 (7%)</td>
<td>10 (34%)</td>
<td>17 (59%)</td>
<td>18 (62%)</td>
<td>29</td>
</tr>
</tbody>
</table>

Note: One question in English sites was with two best answers and one question’s best answer in Chinese sites was missing. “Match with experts” denotes that the best answer marked in Yahoo! Answer was the same choice from researchers. Unmatched best answers indicates that researchers found another answers as the best ones.

Cross-cultural quality comparison of the Social Q&A

The research also examined the differences of the eight information quality dimensions between English and Chinese Yahoo! Answer sites. Figure 1 shows the comparison between English (indicated by darker line) and Chinese (indicated by lighter line) results (average scores) in terms of the eight information quality dimensions. In general, the Chinese figure shows that Chinese answerers tend to provide relatively poorer health information quality as compared to English answerers, though, the level of readability are better (with 0.1 difference) among Chinese answerers.

Figure 1 The Comparison of information quality provided by Chinese and English answerers.

![Figure 1](image_url)

Specifically, while the levels of performance in terms of accuracy, relevance, readability, professional advices and usefulness are relatively close (range differences<0.3) between English and Chinese answers, a greater difference is found on the levels of verifiability (0.3), commercialisation (0.3) and Completeness (0.4). While the average score of certain information quality dimensions for Chinese answers scored above the average (means to be 1.5, total=3), the levels of accuracy and usefulness are just slightly above the average (>0.1). In addition, the levels of completeness (1.3), professional advices and verifiability (1.4) are rated below the average. Conversely, all average scores of information quality dimensions are above the average (from the range of 1.6 to 3). It implies that English answers tend to provide better health information quality as compared to the overall quality of Chinese health-related answers. In addition, questioners of those English regions tend to be given answers with “fair” to “good” quality while Chinese questioners of those regions tend to have a greater risk on receiving poor quality answers.

DISCUSSION AND IMPLICATIONS

Users looking for online elderly health care information might have a high risk of receiving inaccurate information and following harmful advices due to misconceptions of health issues, misunderstanding on the progression of chronic diseases and lack of information verification. Moreover, in terms of questioners’ judgement of information quality, at least 40% of questioners from both language groups have a risk of following misleading or even harmful information as they are incapable of picking the best answers from the perspective of health professionals. Based on the research findings it is clear that health education campaigns and education for improving information literacy are the key for disseminating and obtaining quality geriatric health information; directions and recommendations can be proposed for providing and obtaining quality health information from social Q&A sites.

Professional advices, one of the information dimensions employed in this study, is used to evaluate if the health advices in text would most likely to be given by health professions and presentation manner would be similarly to in the way as health professions’. The professional presentation manner can be indicated by analysing situations based on evidence available; taking caution when sharing clinical cases; capable of informing the rational practice and considering cases individually simultaneously; informing the potential risks and side effects for different options suggested; providing evidence-based information; and presenting in a non-judgmental manner. Online health information is best sought from reliable sources and presented in a way as most health professionals would do, i.e. analysis situations based on available evidence, take caution when sharing clinical cases, inform the rational practice and consider differences in individual cases, highlight the potential risks and side effects for different options suggested, and provide evidence-based and non-judgmental information.
Except the mentioned presentation manner, other aspects involved in the concept of professional advices are likely to be determined by the social education about health, diseases and appropriate health treatments. Therefore, lack of health education may be part of the cultural reasons contributing to that Chinese specialist provides answers with low level of professional advices within Chinese group.

Unlike western culture, the belief of Western medicine and traditional Chinese medicine had been adopted by the most people in the Chinese group, some of them also tend to believe in whatever health treatments that are being shared online or seek for treatments that may not be well-supported by scientific evidence as remedies developed from traditional wisdoms, sociocultural beliefs or natural home remedies. This phenomenon matched with the idea of ‘collectivism’ (Hofstede & Hofstede, 2005, pp. 82-83) and ‘weak uncertainty avoidance’ (p. 202) characterised culturally by ‘more ethnic tolerance’, ‘positive toward foreigners’, ‘lower risk of violent intergroup conflict’ and ‘scientific opponents can be personal friends’ (Hofstede & Hofstede, 2005, p. 203).

Chinese answerers also provided less comprehensive and incomplete answers and seem to be incapable of considering health issues in different aspects of care as compared to those of English group. Prior research found that people from Taiwan, Hong Kong, Mainland China and some of the other Asian regions are not encouraged to share individual ideas at school and workplace. This also matches with the idea of ‘independent self-construal’ (Varnum, Grossmann, Kitayama & Nisbett, 2010, p. 10) in the West and ‘interdependent self-construal’ (p. 10) in the East as part of the contrast social orientation patterns. Therefore, in the long run, educating people to be more knowledgeable and willing to share information may be a way to improve the situation.

As the level of verifiability is determined by the availability of sources of information, it is believed that an overall lower level of verifiability among Chinese answers could be associated with a lower level of respectfulness and acknowledgment given to other people’ works or contributions in the Eastern culture and this can be reflected from the different fundamental cultural values towards the idea of anti-plagiarism between the academic world of the West and Mainland China.

While information services provided by social Q&A digital platforms becomes one of the major sources for searching geriatric health information, the information quality is of great concern by family caregiver of elderly. This study evaluates the quality of geriatric health information of Yahoo! Answers site across Chinese and English regions and makes comparisons in terms of the results of information quality assessment. The roles of answerers are explored in relation to their performance on providing quality geriatric health information. The differences on quality judgement between layman and nursing professionals are examined by comparing their choices of best answers.

In addition, Chinese answerers’ evidence for their practical ideas are found comparatively less often to be provided or highly depending on answerer or their friends’ personal experience. It indicated that answers of Chinese cultures tend to lack of the concept of evidence-base practice in nursing and medicine compared to those of Western cultures. Since the core value in the concept of evidence-based practice is to maximize the level of safety in health professional practice, it would benefit to health consumers in both physical and virtual world. Imagine that if the concept of evidence based medicine/nursing to be more adopted in layman’s mind, it would not only increase the intention of carrying out and maintaining evidence-based health practice by healthcare sectors but also benefit to users’ information sharing experiences on the virtual community as the quality of information they shared increased. Considering that if the government, education, information technology and healthcare sectors can collaborative with others to make this concept as a social norm, health information quality in the virtual environment and safety of healthcare services in general would gradually be increased.

LIMITATIONS

Due to language barriers, this research only examined the quality judgment of questioners from Chinese and English Yahoo! Answers sites on geriatric health issues. European, Middle East and other Asian regional sites which operate in local languages other than Chinese and English, such as France, Italy, Thailand, Japan and Korea, are excluded from this study. In addition, finding of this study would potentially contain certain level of cultural bias as every researcher would have his/her original culture to be based on even though researchers attempt to be as unambiguous as possible during the research process.

CONCLUSION

Online users who seek for specialized health related information in social Q&A sites might lack expertise and literacy skills to identify and select correct information to satisfy the long term health management needs for themselves or their family members. Librarians and health professionals can provide information literacy programs which focus on health information retrieval and source evaluation skills for their users. As a result, users with health concerns can improve their understanding and effectiveness in their search of e-resources on health information with high level of credibility. Creating online platforms and face-to-face channels are important for people and their family members with health concerns to seek health-related clarifications in order to reduce the risks of nursing and medical misconceptions and improve their chance of gaining access to correct information as well as patient and family education. In
addition, people should be reminded that caution must be taken when online diagnosis tools are used for significant medical diagnosis as misuse and misinterpretation of these diagnosis tools and results may lead to fatal consequences.

Further research related to information technologies can be addressed in relation to the application of semantic web and the possibility of applying Artificial Intelligence technology to improve information quality of answers across cultures. Further research related to education can address the efficiency of current education methods for promoting the idea of intellectual property, the concept of evidence-based nursing and medicine among lay people of different cultures and explore ways to promote the importance of ensuring health information quality across cultures.

REFERENCES


