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Wikipedia as an Online Health Information Source: Consumers' Satisfaction with Information Quality

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ABSTRACT

For consumers making health decisions, Wikipedia is a popular source for health information. This study investigated major factors influencing consumer satisfaction with Wikipedia medical/health articles. Using a crowdsourcing method, data were collected from 322 adults who read/edit English Wikipedia medical/health articles and reside in the US. The results showed that the presentation of information was the most influential factor. Trustworthiness was the second most important factor for consumer satisfaction with the quality of information, followed by reliability, and topic coverage. Study participants did not consider other factors such as accuracy and currency to be crucial factors. Moderating effects of the control variables such as editing experience with Wikipedia articles, gender, and age were also examined to enhance the internal validity of the study. Implications for the Wikipedia editor community and researchers, and directions of future research are presented.

Keywords: Wikipedia, consumer health, information quality, consumer satisfaction, health information

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1. INTRODUCTION

The public seeks health information on the Internet with Wikipedia articles on medicine and health becoming a prominent information source for making health decisions. According to Fox and Duggan (2013), health information was sought by 72% of Internet users in the past year. Additionally, 77% of 'online health seekers' started searching on search engines, while another 13% used targeted sites such as WebMD. Even though a small portion (2%) start with a general site like Wikipedia, search engine results direct to websites regardless of trustworthiness and accuracy (Fox & Duggan, 2013). Recent studies show that Wikipedia is one of the most used medical and health information sources which could influence public health (Shafee et al., 2017), and its readership is higher than that of the US National Institutes of Health or WebMD (Heilman & West, 2015). Wikipedia health information is accessed and utilized as a health care information source by 50% to 70% of physicians (Heilman et al., 2011; Hughes et al., 2009) and is the single resource medical students use most (Allahwala et al., 2013).

There are around 20,000 health-related articles on English Wikipedia as of 2017 (Heilman et al., 2011). The strengths of Wikipedia health articles include topic coverage, reference materials, and collaborative updates. In their study Farič and Potts (2014) interviewed 32 "Wikipedians." These Wikipedia editors said their motivations for updating health-related Wiki content included: 'learning about subjects by editing articles,' 'wanting to improve and maintain Wikipedia [as] a professional responsibility,' 'providing good quality health information to readers,' 'editing Wikipedia as a fun, relaxing, engaging, and rewarding activity,' and 'belief in the value of Wikipedia.' Wikipedia health and medical content has been created/edited through collaboration from entities such as medical institutions and universities, academic journals, and groups of health professionals and researchers. A few examples of partnerships include WikiProject Medicine (https://en.wikipedia.org/wiki/Wikipedia:WikiProject_Medicine), Gene Wiki (https://en.wikipedia.org/wiki/Gene_Wiki), and Cochrane (https://en.wikipedia.org/wiki/Cochrane [organization]), which have improved the quality and enhanced the availability of Wikipedia medical content for a broader readership. The information on these sites could impact an individual's decision to change health-seeking behaviors. While these collective efforts have updated, expanded, and improved Wikipedia's perceived accuracy among readers, Wikipedia medical content continually suffers from low readability, omission errors, and uneven coverage (Mesgari et al., 2015; Shafee et al., 2017).

In an information environment where more people seek and rely on online health information compared to traditional approaches of going to their physicians or healthcare providers (Fox, 2009; Renahy et al., 2010), the importance of the quality of online health information sources cannot be over-emphasized. Although healthcare providers/practitioners remain trusted sources of health information, in a study of 6,369 persons who searched for health information online, 48.6% did so without professional guidance (Hesse et al., 2005).

Despite its obvious benefits such as availability and accessibility, online health information is often poor quality, inaccurate, discordant, or misleading (Bernstam et al., 2008; Eysenbach et al., 2002; Price & Hersh, 1999; Rains, 2008). Medical and health information from certain sites is reliable and updated (Kitchens et al., 2014), although health information quality is inconsistent across various topics. As a public health information source, Wikipedia is useful and very highly ranked in terms of currency, but internally it also varies in article quality (WikiProject). There appears to be a dearth of studies that investigate the quality of Wikipedia health information from the perspective of readers' satisfaction. However, few studies have explored information quality and consumer satisfaction in the Wikipedia health-related contents. The development of trust and satisfaction with health information is especially relevant for Wikipedia given its unique standing as a non-governmental source of COVID information during the pandemic.

The current study addresses how health information quality in Wikipedia articles influences Wiki readers' satisfaction with Wikipedia. First, this study identified key factors influencing consumers' health information behaviors such as seeking, assessing, and using information. The study explored consumers' baseline perceptions of the quality of Wikipedia's health information. Second, the study explored key factors contributing to consumer satisfaction. By seeking online health information without subsequently discussing the information with a healthcare professional, consumers jeopardize their patient-health practitioner relationship and potentially their own health (Chen et al., 2018; Tan & Goonawardene, 2017). Consumers' perceptions of the quality of information and their satisfaction with the quality affects the information sources they select (Sbaffi & Zhao, 2020; Zhang, 2014) and is a crucial factor that leads to the continued use of particular information sources or services (Bhattacherjee & Premku-

mar, 2004; Venkatesh et al., 2011).

2. LITERATURE REVIEW

2.1. Quality of Wiki Health Information & Users' Satisfaction

Among both health professionals and the general public, Wikipedia health information is so popular that it could be developed as a unified, open platform for distributing health information (Heilman et al., 2011) and for promoting healthy lifestyles (Hickerson & Thompson, 2009). Along with specialized healthcare wikis, Wikipedia could be a valuable source for nurses seeking evidence-based information (Okoli et al., 2014; Younger, 2010).

Information quality is vital to all Wikipedia users – consumers and researchers. Since Wang and Strong (1996) provided a conceptual model with four major categories for understanding information quality, their framework has been applied to examine and evaluate personal Web portfolios (Katerattanakul & Siau, 2008), business Internet commerce (Katerattanakul & Siau, 2002; Lee et al., 2007), consumer goods and manufacturing companies (Pipino et al., 2002), and health information search results quality (Kitchens et al., 2014), as well as to model online consumer health information quality (Stvilia et al., 2009).

Past research has assessed Wikipedia health and medical information quality in various dimensions. However, the aspects of Wikipedia health topics examined in previous studies vary. Though Wikipedia contains an enormous number of high quality, well-referenced health and medical articles, its content coverage is insufficiently and unevenly representative of all topics (Mesgari et al., 2015; Shafee et al., 2017) and heavily favors English and other European languages (Heilman & West, 2015). Wiki article usefulness is examined in terms of access from search engines (Laurent & Vickers, 2009) and coverage of disease and disorders (Gilbertson et al., 2015). While these topics need improvement, the articles are useful and succinct. As a source of public health information, research has examined factual accuracy (Leithner et al., 2010; Okoli et al., 2014). When evaluated by three independent observers, the accuracy, completeness, and scope of Wikipedia articles on osteosarcoma were of a high quality generally but not as high as those of the National Cancer Institute (Leithner et al., 2010). Trustworthiness of online health information significantly influences its pursuit and utilization (Ye, 2010). Currency, reliability, and other information qualities such as readability and style have been examined for Wikipedia as a whole (Arazy & Kopak, 2011; Stvilia et al., 2007), but little research explores these attributes specifically for Wikipedia health and medicine articles.

In their systematic review of information quality, consumer satisfaction, and their moderating factors in online information environments, Ghasemaghaei and Hassanein (2015) found that website type (retail vs. e-health service) and information quality moderated the association between both perceived information quality and consumer satisfaction. Sample characteristics (general public vs. students; Eastern vs. Western countries) had no moderating effect. Similarly, information quality was directly proportional to consumers' satisfaction (Koo et al., 2011; Lim et al., 2009; Petter et al., 2013).

Based on previous studies' results, Bhattacherjee (2001, p. 364) proposed a post-acceptance model of information systems (IS) continuance based on an adapted expectation-confirmation theory (ECT) that manifests relationships among users' level of satisfaction with the initial IS use, their confirmation, perceived IS usefulness, and users' extent of confirmation. This model validates that satisfaction is the strongest predictor of users' intended continuation and that confirmation was a strong predictor of satisfaction. Though ECT postulates that the IS expectation and expectation confirmation are determinants of user satisfaction, our study's model did not explore expectation. Pre-acceptance attitude or belief is based mainly on cognitive perceptions such as advertisement or indirect information from other sources. On the other hand, post-acceptance satisfaction is based on direct, first-hand experience. Based on factors that have been commonly examined in prior research, we hypothesize as follows:

H1: The accuracy of health information on Wikipedia positively affects satisfaction.

H2: The trustworthiness of health information on Wikipedia positively affects satisfaction.

H3: The reliability of health information on Wikipedia positively affects satisfaction.

H4: The currency of health information on Wikipedia positively affects satisfaction.

H5: The topic coverage of health information on Wikipedia positively affects satisfaction.

H6: The information presentation of health information on Wikipedia positively affects satisfaction.

Other studies examined predictors of continuous use such as disconfirmation, perceived usefulness, and user satisfaction (Bhattacherjee & Premkumar, 2004). Addi-

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tional areas of research included how service quality and users' perceived values impacted short message service (SMS) usage in the post-SMS adoption phase (Lai, 2004), and user behaviors such as social influence and effort and performance expectancy (Venkatesh et al., 2011). Confirmation and satisfaction have been found to be vital to the continued use of IS. IS users' continuance decisions are similar to source selection in consumer health information decisions.

2.2. COVID-19 and Wikipedia

Of course, an examination of Wikipedia health information must discuss the recent COVID-19 pandemic. While a large research body exists regarding COVID-19 disinformation and misinformation online, that topic is too broad and too far beyond the scope of this study.

Throughout the pandemic, the public sought health information online, including Wikipedia. One method of assessing the impact of these information seeking behaviors was measuring digital health literacy. Dadaczynski et al. (2021) found that among German university students, those who used Wikipedia and other public websites had higher digital health literacy than those who relied more on social media. However, it was found across all respondents that assessing reliability and source purpose was a difficulty. On the other hand, Rosário et al. (2020) have found that among Portuguese university students, the reliance on Wikipedia for COVID-19 information was associated with lower digital health literacy when compared to those who used governmental information sources. Another finding was that as the pandemic wore on, respondents tended to have lower digital health literacy. Other studies noted that not only did digital health information literacy decline as the pandemic continued; the frequency of searches also declined. This phenomenon was observed not only on Wikipedia but across a wide range of media types and sites (Gozzi et al., 2020). Jarynowski et al. (2020) found that in Poland the generators of the information had an impact on the media consumption – governmental announcements created the highest consumption across all media types. However, the information lifecycle did vary by media: Traditional media responded more quickly, but online media has a longer information viability. This means that the public consumes online media longer after it is published than traditional media.

As COVID-19 enveloped the globe, the public turned to Wikipedia not only to consume information but to contribute to it. One study found that Wikipedia contributions increased 20% over expectations, with only a small fraction being reverted (Ruprechter et al., 2021). The Ruprechter et al. (2021) study did not stratify contribution by subject, so we do not know if these edits were made in the fields of health and medicine. Chrzanowski et al. (2021) did explore medical information accessed and contributed on Wikipedia, finding a significant increase in articles related to pandemic topics. Furthermore, their study observed a direct temporal-geographical correlation between COVID-19 mortality and editing/reading of COVID-19 articles on Wikipedia. Approaching the question of medical information consumption on Wikipedia from a different perspective, fewer Wikipedia articles on neurological disease were read during the pandemic, while total

Table 1. Demographics of study participants

Variable	Number
Age (yr)	322
18-19	13
20-29	61
30-39	77
40-49	65
50-59	57
60-65	49
Sex	322
Male	140
Female	181
Other	1
Racial background	322
American Indian/Native Alaskan	7
Asian/Pacific Islander	18
Black (non-Hispanic)	44
Hispanic	42
White (non-Hispanic)	199
Multiracial	8
Other	4
Online sites other than Wikipedia used for health information	322
WebMD	165
Medicine Plus	21
Health site (e.g., Mayo Clinic)	74
Centers for Disease Control and Prevention	50
Other	12

Wikipedia use increased (Rutovic et al., 2021). Although Wikipedia readership and contributions rose during the pandemic with low reversion rates to previous versions of the articles, these results do not on their own address the quality of information generated or consumed. Benjakob et al. (2022) found that Wikipedia COVID-19 articles often cited high quality information and remained robust against misinformation which was simultaneously spreading through other online sources, such as social media.

Based on the quality and quantity of information available on Wikipedia, other researchers have used the site as a source of data to track interventions for COVID-19 globally (Suryanarayanan et al., 2021). Although the information extracted from Wikipedia underwent processing, the processing manipulated the information into a machine-readable format, not to 'clean' the information itself. All this indicates that Wikipedia has proven to be a resilient, reliable source of information throughout the pandemic.

3. METHODOLOGY

3.1. Study Participants

We recruited a total of three hundred and twenty-two adults using Qualtrics Panel Services (www.qualtrics.com). This tool offers a comprehensive and versatile solution for seeking to conduct surveys, and thus has been widely used in academic research. It provides researchers with a robust set of features to design and distribute surveys, making it a popular choice for collecting data across various academic fields (Waddell et al., 2022). We specifically requested a profile of American residents who were readers and contributors of Wikipedia. The data was collected between April and May 2021. A purposive sampling approach was employed. In order to ensure the targeted population participated, we asked questions to establish respondent suitability. Study participants had a body mass index of 25 or higher, which is defined as being overweight or obese (https://www.nhlbi.nih.gov/health/educational/lose_wt/BMI/bmicalc.htm) with the rationale that this population would be keener to access obesity-related health information. The participants were required to be between 18 and 65 years old; have experience of searching, using, or contributing to/editing the English edition of Wikipedia in the last two years; and reside in the US. Study participant demographics are in Table 1.

The current study has complied with all relevant national regulations and institutional policies and has been approved by the authors' institutional review board. Informed consent has been obtained from all individuals included in this study.

3.2. Data Collection

We identified key factors influencing information quality from previous studies on health information seeking and services (Koo et al., 2011; Stvilia et al., 2007; Wang & Strong, 1996) and adapted them for the present study. The survey was conducted online during the spring semester of 2021, capturing data on perceived Wikipedia quality factors (Table 2), including information presentation, reliability, trustworthiness, topic coverage, and accuracy. Additionally, demographic information about participants – such as age, gender, racial background, and their experience level in terms of readership and/or content con-

Table 2. Information quality factors

Information quality	Measurement question	Source
Accuracy	Do you agree that health information on Wikipedia is correct?	Modified questions from Koo et al. (2011), Stvilia et al. (2009), and Wang and Strong (1996)
Trustworthiness	Do you agree that health information on Wikipedia is credible?	
Reliability	Do you agree that health information on Wikipedia is objective?	
Currency	Do you agree that health information on Wikipedia is current and timely?	
Topic coverage	Do you agree that breadth of health topics on Wikipedia is comprehensive?	
Information presentation	Do you agree that health information presentation on Wikipedia is easy-to-read?	
Satisfaction	How do you feel about your overall experience of using health information of Wiki articles?	

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tribution to Wikipedia – was collected. Participants also provided their perceptions of the quality of other online health sources. The information quality questions were assessed on a 7-point Likert scale (1=strongly disagree, 7=strongly agree).

4. RESULTS

4.1. Seeking Online Health Information

Beyond Wikipedia, individuals predominantly sought health information from major online sources, with WebMD being the most visited (51.24%), followed by private health sites like Mayo Clinic (22.98%), the Centers for Disease Control and Prevention (CDC) (15.53%), Medline Plus (6.52%), and others such as Google or Bing (3.73%). Analyzing responses related to Wikipedia articles on weight and obesity, the most commonly sought-after information encompassed diet and nutrition (75.76%), healthy lifestyle advice (72.68%), and statistics and trends (61.49%). Additional areas of interest included complications of obesity (49.37%), treatments for obesity (44.72%), citations and references (43.96%), and symptoms of obesity (41.32%).

4.2. Multiple Regression Analysis

The data collected from the survey were analyzed with descriptive statistics and multiple regression to examine the effects of information quality factors on consumers' satisfaction with Wikipedia health information. In addition, the moderating effects of control variables were measured to assess statistically significant differences between regression coefficients of two groups for the three variables, respectively: age, gender, and editing experience (readers vs. readers/content contributors).

Table 3 presents the overall mean values of the seven information quality factors (grand mean=4.9462). All were greater than 4 (the median), which means respondents have positive perceptions of the health information quality in Wikipedia articles. *Information presentation* is the highest ranked factor (mean=5.4658; 82.92% rated positively for Somewhat Agree, Agree, or Strongly Agree), followed by *currency* (mean=5.0217; 66.15% rated positively for Somewhat Agree, Agree, or Strongly Agree), and *topic coverage* (mean=5.0093; 70.20% rated positively for Somewhat Agree, Agree, or Strongly Agree). These descriptive statistics reveal that the respondents were satisfied with health information in Wikipedia (mean=5.3696). The factor variances (standard deviation) are not disperse. Respondents favorably evaluated each category of information quality. Based on the Q-Q plots, the normality of independent variables was generally satisfied, as indicated in Fig. 1.

Table 3. Results of descriptive statistics (n=322)

Information quality factors	Mean	Standard deviation
Accuracy	4.6398	1.47483
Trustworthiness	4.8385	1.37581
Reliability	4.7019	1.44621
Currency	5.0217	1.27136
Topic coverage	5.0093	1.37736
Information presentation	5.4658	1.28752
Satisfaction	5.3696	1.25430
Grand mean	4.9462	1.35530

Results of multiple regression analysis (Table 4) show the associations between six independent variables (information quality) and respondents' satisfaction. A goodness-for-fit measure, R square (R^2), is 58.5%, and the regression model in this study is proved to be valid (F=73.949, $p<0.01$). Collinearity factors, Tolerance, and variance inflation factor (VIF) diagnose whether independent variables are too closely related. Table 4 shows that tolerance statistics for each are all above 0.40 and VIFs for each are all lower than 3, which ensure multicollinearity (Allison, 1999).

Trustworthiness, *reliability*, *topic coverage*, and *information presentation* significantly affected user' satisfaction with Wikipedia health information; *accuracy* and *currency* had no significant effect on satisfaction. Among the factors, *information presentation* (t=6.644, $p<0.001$) and *trustworthiness* (t=4.727, $p<0.001$) were most influential on users' satisfaction, followed by *reliability* (t=3.418, $p<0.01$) and *topic coverage* (t=3.108, $p<0.01$).

In addition, prior studies reveal that individual factors have significant impact on users' adoption of health information (e.g., Ghasemaghaei & Hassanein, 2015; Miller & Bell, 2012). We thus examined moderating effects of gender, age, and editing experiences. Respondents were divided into two groups for each variable: male vs. female, 40 or older vs. younger than 40, and only a reader vs. editor. We examined whether there is significant difference between regression coefficients of the two groups for these three variables. Table 5 shows the results of moderating effects. The effect of *information presentation* on satisfaction was significantly increased in female respondents, and the effect of *topic coverage* was enhanced in younger

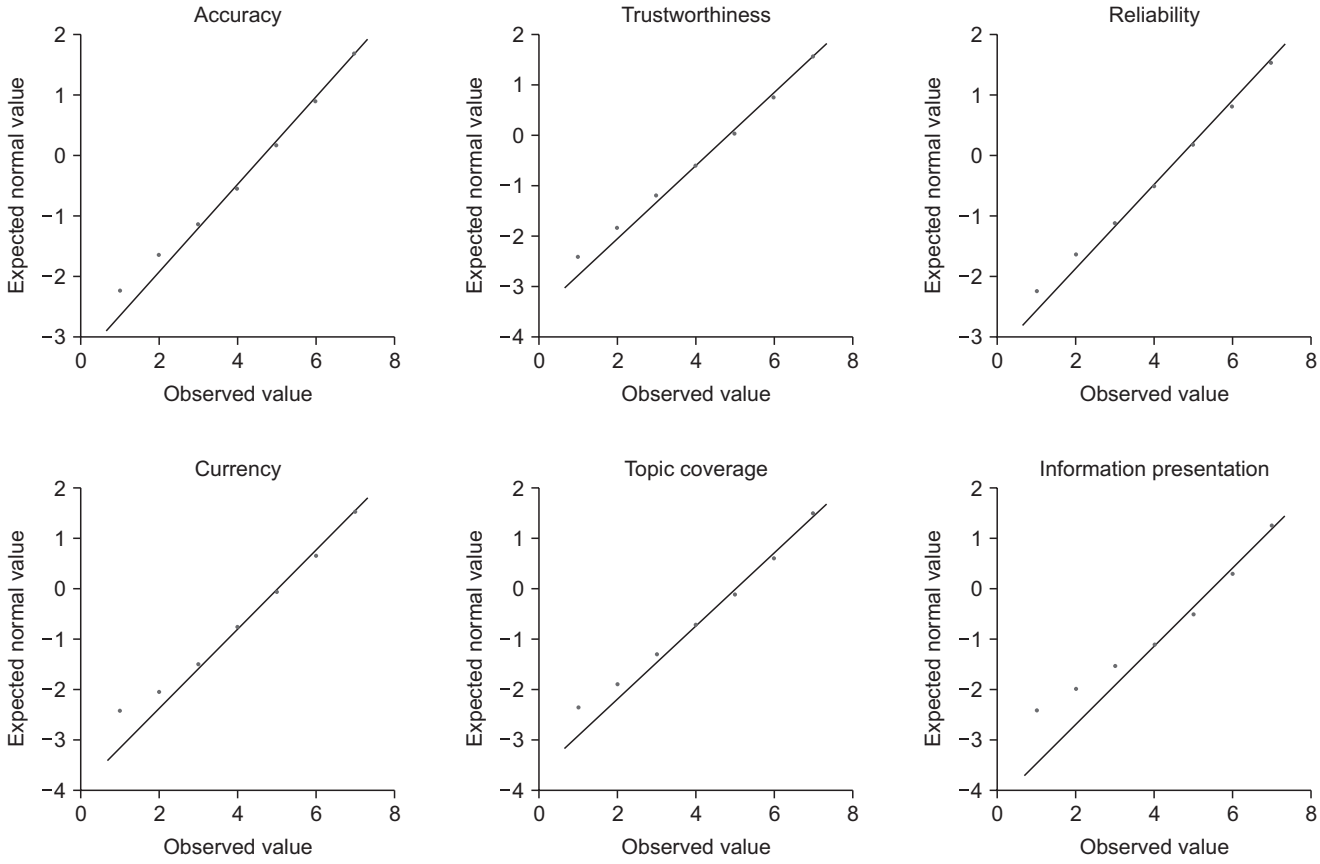

Fig. 1. Q-Q plots (normality of independent variables).

Table 4. Results of multiple regression analysis: information quality

	Unstandardization coefficient		Standardization coefficient	t	Significance level	Collinearity statistics	
	B	Standard error	Beta			Tolerance	VIF
Independent variable							
Constant	0.926	0.229	-	4.040	<0.001	-	-
Accuracy	0.050	0.046	0.058	1.074	0.284	0.445	2.248
Trustworthiness	0.270	0.057	0.297	4.727*	<0.001	0.335	2.985
Reliability	0.145	0.042	0.167	3.418*	0.001	0.549	1.821
Currency	-0.005	0.051	-0.005	-0.098	0.922	0.503	1.989
Topic coverage	0.142	0.046	0.156	3.108*	0.002	0.523	1.913
Information presentation	0.281	0.042	0.288	6.644*	<0.001	0.700	1.428
Dependent variable							
Satisfaction R^2=0.585, *Adjusted* R^2=0.577, F=73.949							

VIF, variance inflation factor.
*p<0.01.

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Table 5. Results of multiple regression analysis: sex, age, and experience (control variables)

Control variable	Accuracy				Currency			
	Trustworthiness		Reliability		Topic coverage		Information presentation	
	Reg. coef.	Sig. diff.	Reg. coef.	Sig. diff.	Reg. coef.	Sig. diff.	Reg. coef.	Sig. diff.
Sex								
Male	0.330	t=-0.198 (p=0.843)	0.213	t=1.613 (p=0.108)	0.179	t=-0.045 (p=0.964)	0.168	t=-2.975[a] (p=0.003)
Female	0.343		0.114		0.182		0.374	
Age (yr)								
>40	0.355	t=-0.322 (p=0.748)	0.200	t=0.580 (p=0.562)	0.089	t=-2.835[a] (p=0.005)	0.343	t=1.740 (p=0.083)
<40	0.376		0.164		0.274		0.220	
Editing experience								
Reader only	0.499	t=3.481[a] (p=0.001)	0.134	t=-1.559 (p=0.120)	0.204	t=1.338 (p=0.182)	0.234	t=-1.728 (p=0.085)
Editor	0.269		0.233		0.116		0.355	

Reg. coef., regression coefficient; Sig. diff., significant difference.
[a]This value is statistically significant.

generations. Respondents who had no experience of editing/contributing Wiki content were more influenced by *trustworthiness.*

5. DISCUSSION

Regarding Wikipedia health information, users have a mostly positive evaluation based on our results. We furthermore demonstrated that perceived quality of information influences Wikipedia user satisfaction, while accuracy and currency are far less relevant.

Presentation of the information was the most influential factor affecting user satisfaction. Participants recognized and chose Wikipedia as a source of health information due to the well-presented health information. This finding aligns with previous studies identifying information quality in health systems as a crucial factor and showing that effective presentation of information helps readers understand and interpret health information (Koo et al., 2011). Comparatively, research has also mentioned the usefulness of hospital websites, and that they serve as a natural extension of services to patients and health information consumers (Fulda & Kwasik, 2004; Gallant et al., 2007). Similarly, previous studies have discussed information quality markers on health websites, including clarity of written online health information on health Q&A sites (Chu et al., 2018) and readability (Bates et al., 2006; Stvilia et al., 2007). Interestingly, the readability of articles in the hard sciences has been found to be higher than for articles in the humanities and soft sciences using an objective measurement of readability (Ehmann et al., 2008). In contrast, medical content on Wikipedia has been perceived as having low readability due to errors, even when the articles are well referenced and have comparatively good quality (Mesgari et al., 2015).

Trustworthiness: Trustworthiness was the second-most mentioned factor affecting user satisfaction. Trustworthiness is a quality of information that is deserving of trust or confidence, which may be related to other attributes of information quality as well. In this study, we conceptualized trustworthiness as credibility. Choi (2019) conceptualized the trustworthiness of health information on the Internet as having three dimensions: the operator (the agent(s) who develop and manage the sites), content (valid and updated information), and design (structural, technical, aesthetic, and interactive features on the site). This finding also aligns with the measure of online health information for information seeking in Kitchens et al. (2014)'s study. They conceptualized two factors for quality of information on a website: accuracy and trustworthiness. Trust-

worthiness in their study entails the "websites' authoritativeness, use of source attribution, justifiability of claims, distinction between advertising and actual health content, and transparency" (Kitchens et al., 2014; p. 456). They also found a positive association between website quality and website importance.

Reliability: In this present study, reliability is conceptualized as objective information which positively influenced consumer satisfaction. In other studies, reliability refers to having many citations and related sources, or notable and verifiable information, with the number of references as a proxy for reliability (Heilman & West, 2015). Wikipedia articles are regarded as relatively well referenced and providing high quality (Heilman & West, 2015; Mesgari et al., 2015).

Topic coverage: Health topic coverage on Wikipedia had a positive influence on consumer satisfaction in this study. Considering that medical/health topics are complicated and vast in the coverage, it is not surprising that the topic coverage of Wikipedia was perceived differently. Studies have found that Wikipedia fails to provide an answer to clinical questions compared to large search engines (Okoli et al., 2014); it unevenly covers various topics due to the small number of volunteer contributors (Shafee et al., 2017); and content has improved only gradually (Zhao et al., 2020). Nevertheless, Wikipedia could serve as a great starting point for consumer health information and can be a popular platform as a source of public health information.

Accuracy: Wikipedia's accuracy had an insignificant impact on satisfaction and was rated relatively low compared to the other factors in this study. This finding implies that readers may not expect highly accurate health information on Wikipedia. Empirical research has found that there is conflicting health information between Wikipedia and peer-reviewed medical literature (O'Mathúna, 2018). However, the respondents in our study were overweight or obese and more aware of their health, so they may want highly accurate health information from expert sites (e.g., WebMD) rather than Wikipedia. We can infer that users utilize Wikipedia to find general health information but have different digital sources for highly specific health information.

Currency: The respondents assessed how current the health information is on Wikipedia and rated it relatively highly, but there was no significant impact on satisfaction. This result suggests that respondents thought that health information is up-to-date anywhere else (information sources or websites), but that currency was not an important attribute of Wikipedia health information. The majority of respondents chose WebMD as their most frequently used digital health information source. In addition, 16% of respondents relied on the CDC website, indicating that users' contingent information-seeking behavior was based on information quality.

Analyses of control variables show that female participants showed higher satisfaction from information presentation, younger respondents from topic coverage, and those inexperienced with Wiki editing were most influenced by trustworthiness. Women frequently demonstrate strong abilities in verbal and linguistic skills, potentially making them more attuned to the subtleties of how information is presented (Halpern et al., 2007). As far as the impact of age is concerned, growing up immersed in the Internet and digital technology, younger people, known as digital natives, are generally more at ease and acquainted with various online platforms. This familiarity makes them particularly attuned to the range and comprehensiveness of topics available online. People who have not contributed to Wikipedia may feel that their expertise falls short compared to active editors and contributors. This feeling of a knowledge gap may cause them to rely more heavily on the trustworthiness of the presented information, as they might believe they are not as equipped to critically assess the content.

Our research findings indicate that factors such as information presentation, trustworthiness, reliability, and topic coverage significantly influence the quality of content contributed by Wikipedia content contributors. For instance, contributors should prioritize using credible and authoritative sources with proper references to enhance trustworthiness. Ensuring content is fact-based, verifiable, and presented objectively contributes to reliability. Additionally, content should be logically presented, readable, and clearly organized for effective information presentation. Regarding topic coverage, greater participation from individuals with qualified content knowledge is needed, especially in health topics, to diversify and enrich the content across a variety of health-related subjects.

Nevertheless, Wikipedia functions as a collaborative and open editing platform, where contributors (editors) voluntarily create or edit content to the best of their abilities. Consequently, we aim to present our findings as guidance for their contributions, offering collective insights and considerations to enhance the quality of their input.

This study has limitations. First, we used purposive sampling for this study. The respondents were individuals who might have health concerns related to being over-

weight/obese and who were reading and/or editing health information in Wikipedia articles. Thus, this study sample was limited to a specific group in both the topics and their source selection. Even though our purposive sample of participants included crucial informants for the study, it could affect the generalizability of the findings. Second, our study participants resided in the US and could read/edit the English edition of Wikipedia. There are Wikipedia editions in other languages (e.g., Spanish or Chinese) that are read by significantly larger populations compared to the US population. Lastly, each construct of information quality entails multiple sub-dimensions such as trustworthiness and information presentation. Hence, more nuanced construct development in future studies would enhance the breadth of the study findings and provide more detailed insights.

6. CONCLUSION

This study examined several influential attributes related to consumers' satisfaction with health information on Wikipedia. Our findings indicated that people select Wikipedia to find trustworthy, reliable, variety-rich, and well-presented health information. These perceptions and seeking behaviors are confirmed by prior research postulating that the selection of information sources depends on specific characteristics of the sources (Zhang, 2014). Health information on Wikipedia could have real-world impacts as it becomes more popular that are both positive and negative. For consumers of health information, decisions based on inaccurate or untrustworthy health information can be fatal; therefore, consumers must be able to assess the quality of online health information.

Our findings have several implications. The findings can inform both the medical and Wikipedia-editorial community about how consumers perceive and evaluate health information on Wikipedia. Focusing on the findings of this study can help improve the quality and broaden the readership of health information on Wikipedia. Considering that there is a vast amount of available health information on Wikipedia and that consumers depend on the information for their health decisions, it is enormously important to focus on improved quality. Increasing providers' and developers' awareness about the information quality on Wikipedia could impact consumer satisfaction and health information selection. Future research should explore the associations among consumers' expectations, satisfaction, and selection of health information sources. Additionally, as indicated by the control variables in this study, researchers could focus on gender, experience editing Wikipedia articles, and perceptions of various age groups related to health information quality attributes. There is especially a gender imbalance in Wikipedia contributors providing health information on Wikipedia. Future research should provide recommendations on how this gender gap can be mitigated.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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