

SARS-CoV2, the COVID-19 Pandemic and Community Perceptions

Journal of Primary Care & Community Health
Volume 12: 1–5
© The Author(s) 2021
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/2150132721995451
journals.sagepub.com/home/jpc



Nikki Keene Woods¹, Inneké Vargas¹,
Melody McCray-Miller², Amy Drassen Ham¹,
and Amy K. Chesser¹

Abstract

The purpose of this study was to describe knowledge and beliefs about SARS-CoV2 and COVID-19 and explore the gaps between current media coverage of health risks and what the general public knows about the virus and its outcome. A 37-question survey was developed and administered to a community collaborative group in a Midwestern state in the United States. Fifty-three participants completed the survey. When asked where participants found their information, a majority reported the internet (33.9%, $n = 18/53$) and radio and/or tv (28.3%, $n = 15/53$). Most participants showed a basic level of COVID-19 knowledge, but few could identify the 3 most frequent symptoms of COVID-19 (7.5%, $n = 4/53$). The results from this study highlight the continued need for increased public health communication. Educational efforts should focus on social media and internet outlets to address COVID-19 misinformation, strategies to address vaccine hesitancy, and the associated communication gap to help address related health disparities.

Keywords

health communication, COVID-19, risk communication, health literacy, vaccine hesitancy, health disparities

Dates received 19 November 2020; revised 21 January 2021; accepted 27 January 2021.

Introduction

The first case of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the cause of the acute respiratory disease named “coronavirus disease 2019” (COVID-19) appeared in Wuhan, China on December 31, 2019.¹ This launched an unprecedented global pandemic resulting in an information hailstorm concerning the prevalence, precautions, and treatment of COVID-19.² In the United States as of August 2020, there were over 160 000 deaths reported from COVID-19.³ As the world worked to understand the impact and implications of the Pandemic, reputable information (and sources) for COVID-19 became important. High amount of multichannel information resulted in misinformation and a wide range of opinions from the general public.⁴ However, over time, there have been sources that have corrected the misinformation and provided helpful information. The positive aspect of widely available health information includes the expeditious sharing of best practices online through websites and social media platforms to the general public.⁵ Conversely, the spread of misinformation and conjecture also disseminate at a rapid pace.⁶

Public health officials made efforts to limit the sharing of misinformation by providing open source access to data and health care recommendations via online and social media platforms.⁷ Despite the efforts of medical professionals to produce fact-based information, there is a disproportionate number of adults in the United States who feel confident in their ability to verify information they receive about COVID-19.⁸ This survey-based study was conducted to assess participant health information sources, and knowledge and beliefs about the virus SARS-CoV-2 commonly referred to as the disease COVID-19, to improve medical provider and patient communication and address public health misinformation in high-frequency information sources.

¹Wichita State University, Wichita, KS, USA

²Miller Inc., Wichita, KS, USA

Corresponding Author:

Nikki Keene Woods, Department of Public Health Sciences, College of Health Professions, Wichita State University, 1845 Fairmount Street, Box 43, Wichita, KS 67260, USA.

Email: nikki.keenewoods@wichita.edu



Methods

Study Setting and Population Characteristics

This community-based study was conducted with a convenience sample in a Midwestern urban setting with a collaborative women's health group as part of a larger study on community engagement to address health disparities. The Women's Health Network included a collaborative of organizations and individuals from the local community and several from across Kansas. Members were primarily female, but membership was not restricted by gender. Additionally, many members were health service providers given the scope of the primary study to engage community members and providers to address women's health equity issues.

The test-survey was created through a compilation of questions provided by the authors, administered through Qualtrics[®], a survey building and analytics platform, and emailed to participants (N=153). The survey included 37 questions including demographics, preferred health information sources, assessment of health literacy level, and COVID-19 facts. The survey questions were based on the information seeking as part of uncertainty reduction theory,⁹ COVID-19 information from Centers for Disease and Control (CDC),¹⁰ and questions from the National Health Interview Survey by the CDC.¹¹ The survey was administered to both the board of directors and network members. Participants included medical professionals, community members, students, and community organization representatives. Data was collected from April through May 2020 to assess knowledge and beliefs about SARS-CoV-2 and COVID-19, and to identify COVID-19 information sources. All participants were compensated with a \$50 gift card incentive.

Descriptive statistics were used to analyze the data using the Qualtrics[®] system. The study was approved by a university institutional review board. The entire community network membership received an email invitation to participate in the survey (N=153). The response rate was 42.4% with 65 participants starting the survey. This study was approved by the university review committee for human subjects protection. All participation in the survey was voluntary and the questions were optional to complete resulting in varying response numbers for each question.

Results

Demographics. Survey participants ranged from 18 to 100 years old (n=53), with all living in Wichita, Kansas. Survey participants were mostly women (96.15%, n=50/52), followed by men (1.92%, n=1/52), or preferred not to answer (1.92%, n=1/52). The average age was 27 years (SD=13.48). The most frequent races reported were Caucasian (50.94%, n=27/53), African American (28.3%, n=15/53), and Asian (1.89%, n=1/53). Almost 17% of

Table 1. COVID-19 Information Sources.

Information source	n* (%)
Website for television news show (eg, local broadcast news website)	35 (21)
Facebook	25 (15)
Local or National Paper website (eg, Wichita Eagle or Wall Street Journal)	32 (19)
News App (eg, BuzzFeed or NPR)	23 (14)
Email news newsletter (eg, The Skimm)	14 (8)
University Student Paper—including website or Facebook sites)	8 (5)
Podcast	8 (5)
Twitter	7 (4)
Instagram	5 (3)
Comedy news sources	3 (2)
Snapchat	2 (1)
Other	8 (5)
Total (*multiple response question)	170

participants reported their ethnic designation as Hispanic or Latino (16.98%, n=9/53). Several occupational backgrounds were reported including: health service providers (31.37%, n=16/51), community members (54.9%, n=28/51), as well as students (13.73%, n=7/51), faculty (13.73%, n=7/51), and public health professionals (13.73%, n=7/51). Over a quarter of participants reported a high health literacy level (26.2%, n=17/65).

COVID-19 information sources. One quarter, 24.5% (n=13/53) of participants reported “always” getting their information from the internet, while 45% (n=24/52) reported getting their information from the internet only “sometimes,” and newspapers were described as not frequently used for health information (36%, n=18/50) (Table 1). Additionally, participants reported getting health information from health care professionals like doctors, nurses, and therapists as “most of the time” (35.1%, n=19/54) and “always” (n=13/54) at 24%. When asked “Where have you heard the most information about COVID-19?” 33.9% of participants reported the internet is where they have heard the most information about COVID-19 (n=18/53). When asked if “sick and tired of hearing about COVID-19,” participants responded on a sliding scale from 1 (not tired) to 5 (very sick and tired) in the middle range with a mean of 2.29 (SD=1.24, n=49).

COVID-19 knowledge and beliefs. Most participants, 96.2% (n=51/53) correctly reported there is no cure for COVID-19 (Table 2). Very few survey responders (7.5%, n=4/53) could correctly identify all 3 of the major symptoms associated with COVID-19 as reported by the Centers for Disease Control and Prevention (CDC) at that time (ie, fever, shortness of breath, and cough). One hundred percent (100%,

Table 2. COVID-19 Knowledge.

Questions	n* (%)
No current cure for COVID-19	51/53 (96)
Three main COVID-19 symptoms	4/53 (8)
Underlying health problems COVID-19 risk factor	52/52 (100)
COVID-19 vaccine compliance	31/52 (60)
Pregnant and nursing mother knowledge	5/34 (15)
Proper hand washing duration	45/52 (87)

*Questions were optional and not all participants completed every question.

n=52/52) of participants reported individuals with underlying health problems were more susceptible to COVID-19 complications. Additionally, just over half of participants reported they would get a COVID-19 vaccine if and/or when it is available (59.6%, n=31/52).

Participants reported many beliefs associated with COVID-19. Most were worried their family, friends, and loved ones would contract the virus (Mean=3.51, SD=1.61) on a scale from 1 (strongly disagree) to 5 (strongly agree) (Table 3). Participants reported COVID-19 is a global threat but are confident public health officials will do what it takes to keep their communities safe from COVID-19 (Mean=3.67, SD=1.17). Confidence in disease experts developing a treatment or cure before the pandemic gets “too bad” was reported as average (Mean=1.88, SD=1.11), and confidence in the government’s handling of COVID-19 was even lower at 1.77 (SD=1.20). Lastly, most participants correctly identified the recommended time to practice safe hand washing with 86% reporting at least 20s to prevent the spread of diseases like COVID-19 (n=45/52).

Discussion

Internet news websites and Facebook are often the most frequently accessed health information sources in modern times and especially during emergencies such as the COVID-19 pandemic. As such, these sites can be utilized to reach large and diverse populations to increase their knowledge on COVID-19 facts and other health topics.¹² This study supports previous findings regarding how condition-related health information, such as COVID-19, is accessed, but it is unclear how much of the information available on social media platforms is accurate and evidence-based.¹³

The study findings indicate all participants, regardless of education level and/or income, reported concerns with transmitting the virus that causes COVID-19 to their loved ones. Ninety-six percent (96%, n=51/53) of participants accurately reported there is no cure for COVID-19. Although most participants reported they felt confident in public health experts’ ability to keep the community safe,

only 60% (n=31/52) of participants stated they would get a vaccine if it were available to them. This poses a complex public health problem as vaccine uptake is an important part of the multi-pronged approach to mitigate the spread of SARS-CoV2. It could also be interpreted as a proxy measure for participants’ perceived susceptibility to and severity of COVID-19.¹⁴ Human clinical trials for a vaccine are underway, a process which historically takes a decade of development.¹⁵ With the vaccine research underway, there is an increasing need to educate community members about the importance, safety, and effectiveness of vaccines. Rapid dissemination of mitigation strategies is possible but could continue to be dramatically hindered due to the amount of inaccurate health information being shared without credible sources.¹⁶ Misinformation could additionally impact vaccine education campaigns and should be carefully addressed in future strategies to promote the future SARS-CoV2 related vaccines.¹⁷

Misinformation on social media also impacts other behaviors associated with recommended community mitigation strategies. For example, COVID-19 is less likely to spread with individual adherence to wearing masks, but individuals and organizations have shared online information both for and against mask use. Similar mixed messages have occurred with other public health recommendations, such as hand hygiene.¹⁸ Wearing masks reduces infection rates and risk of infecting high-risk populations, as reported by many national health organizations and the CDC.^{19,20}

Individuals who are immunocompromised and elderly are at a higher risk of complications from COVID-19. Of study participants, 100% correctly identified this risk factor for COVID-19 complications. Nursing homes throughout the country are at a higher risk because of the resident’s vulnerability toward the virus. The CDC recommends nursing homes develop an Infection and Control Program (IPC) to maintain and help staff notice the signs and symptoms that comes with COVID-19.²¹

Individuals that have children or loved ones at risk are more likely to be aware of changes happening in the world regarding COVID-19. In this study, 97% of the participants had children and 96% reported they pay attention to or look for health information. During this unprecedented time, parents and children are living with increased stress, media hype and fear.²² Economically, COVID-19 is hindering long-term thinking and appropriate work-life balance that could cause extended periods of stress in households.

This study highlights gaps in knowledge about SARS-CoV-2 and COVID-19 but is not without limitations. Limitations include a small sample size and population selection resulting in limited generalizability of the findings. The greatest threat to external validity was the use of an unvalidated questionnaire. The authors piloted the study questions prior to administering this survey and future

Table 3. COVID-19 Beliefs.

Question (strongly disagree=0, strongly agree=5)	Mean	SD	n
COVID-19 is a major global health threat	4.48	0.90	53
I'm worried my family and/or friends will get COVID-19	3.51	1.16	51
I can protect myself from getting COVID-19	3.92	1.05	52
Public health experts will do what it takes to keep the community safe from COVID-19	3.67	1.17	53
I'm worried I will get COVID-19	2.73	1.44	52
I am confident the government will be able to handle an outbreak of COVID-19 in this country	1.7	1.20	51
Disease experts will develop a treatment or cure for COVID-19 before it gets too bad	1.88	1.11	51
The COVID-19 threat soon will be over	1.57	1.18	48
I should use a facemask to prevent getting COVID-19	4.19	1.21	52
I can get COVID-19 from packages delivered from China	1.53	1.59	36

studies will be conducted to further validate the question set. Other limitations include a small sample size and population selection which may represent sample errors or low statistical significance and limited generalizability of the findings. Participants were members of a community collaborative group and were acquainted with one another and they may have discussed the research questions prior to completing the survey. The participants also were demographically heterogeneous ranging by education level, occupation, and race and/or ethnicity. Some participants worked in health care and may have directly observed the outcomes of COVID-19 potentially creating a representative heuristic bias impacting their attitudes about the spread of SARS-CoV-2. Some of the researchers knew members of the community collaborative group, so some participants may have been anxious about reporting beliefs and attitudes about COVID-19 or they may have told researchers what they think they wanted to know. Methods were used to ensure independent responses and reduce deference effects by reinforcing confidentiality and the use of de-identified data. Participants were also reassured their contributions would help shape COVID-19 communications and in no way would affect their standing in the community collaborative group through the informed consent process.

Conclusion

There are a significant number of resources available to access timely health information. COVID-19, however, there remains serious risk communication knowledge gaps.²³ Public health officials and governmental entities are working closely to evaluate processes and procedures to keep communities safe. Recommendations to slow the increase of COVID-19 cases including social distancing, limiting gatherings, wearing face masks, and washing hands for at least 20s with soap and water must continue to be communicated to the public.²⁴ Study findings support

continued development of risk communication strategies using frequently reported online news websites and social media sources.²⁵

In order to mitigate the spread of COVID-19, there is an immediate need for increased accurate health information from credible sources available online and via social media. It is crucial that the public trusts and complies with public health and medical officials' mitigation recommendations, including those for a potential vaccine. Targeted risk communication strategies are critical to ensuring the success of these public health practices and compliance with regulations. Mitigating COVID-19 and other infectious diseases requires reliance on evidence-based risk reduction information and the collective effort of public health professionals, health care service providers, and the community.

Acknowledgments

The authors would like to thank the Women's Health Network of Kansas members and board members for participating, Charles Burdsal, PhD, Social Science Research Laboratory and student research assistants Ali Phelps and Courtney Bennet.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Financial support: Patient Centered Outcomes Research Institute (PCORI) Eugene Washington PCORI Engagement Award 10663-WichSU.

ORCID iD

Nikki Keene Woods  <https://orcid.org/0000-0001-8545-9010>

References

1. Cheng S-C, Chang Y-C, Chiang Y-LF, et al. First case of Coronavirus Disease 2019 (COVID-19) pneumonia in Taiwan. *J Formos Med Assoc.* 2020;119:747-751.
2. Ignacio H-G, Teresa G-J. Assessment of health information about COVID-19 prevention on the internet: infodemiological study. *JMIR Public Health Surveill.* 2020;6:e18717. doi:10.2196/18717
3. World Health Organization. Coronavirus Disease (COVID-19): Weekly Epidemiological, Update 1. World Health Organization; 2020.
4. Qin L, Sun Q, Wang Y, et al. Prediction of number of cases of 2019 novel coronavirus (COVID-19) using social media search index. *Int J Environ Res Public Health.* 2020; 17:2365.
5. Liu W, Yue X-G, Tchounwou PB. *Response to the COVID-19 Epidemic: The Chinese Experience and Implications for Other Countries.* Multidisciplinary Digital Publishing Institute; 2020.
6. Cuan-Baltazar JY, Muñoz-Perez MJ, Robledo-Vega C, et al. Misinformation of COVID-19 on the internet: infodemiology study. *JMIR Public Health Surveill.* 2020;6:e18444.
7. Kullar R, Goff DA, Gauthier TP, et al. To tweet or not to tweet—a review of the viral power of Twitter for infectious diseases. *Curr Infect Dis Rep.* 2020;22:1-6.
8. Gottfried J. Around three-in-ten Americans are very confident they could fact-check news about COVID-19. Accessed September 19, 2020. <https://www.pewresearch.org/fact-tank/2020/05/28/around-three-in-ten-americans-are-very-confident-they-could-fact-check-news-about-covid-19/>.
9. Griffin EA. *A First Look at Communication Theory.* McGraw-Hill; 2003.
10. Centers for Disease Control and Prevention. COVID-19: Pregnancy, Breastfeeding, and Caring for Newborns. Centers for Disease Control and Prevention; 2020.
11. National Center for Health Statistics. NHIS Questionnaires. National Center for Health Statistics; 2020.
12. Ali SH, Foreman J, Capasso A, et al. Social media as a recruitment platform for a nationwide online survey of COVID-19 knowledge, beliefs, and practices in the United States: methodology and feasibility analysis. *BMC Med Res Methodol.* 2020;20:1-11.
13. Chesser A, Drassen Ham A, Keene Woods N. Assessment of COVID-19 knowledge among university students: implications for future risk communication strategies. *Health Educ Behav.* 2020;47:540-543.
14. Dubé E, Laberge C, Guay M, et al. Vaccine hesitancy: an overview. *Hum Vaccines immunother.* 2013;9:1763-1773.
15. Casey G. A vaccine for COVID-19? *Kai Tiaki: Nurs NZ.* 2020;26:29-29.
16. Guidry JP, Austin LL, O'Donnell NH, et al. Tweeting the# flushot: beliefs, barriers, and threats during different periods of the 2018 to 2019 flu season. *J Prim Care Community Health.* 2020;11:2150132720932722.
17. Broadbent JJ. Vaccine hesitancy: misinformation on social media. *BMJ.* 2019;366:l4457.
18. Jenner EA, Jones F, Fletcher BC, et al. Hand hygiene posters: motivators or mixed messages? *J Hosp Infect.* 2005;60: 218-225.
19. Centers for Disease Control and Prevention. Considerations for wearing a mask available. Accessed September 21, 2020. <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover-guidance.html>.
20. Rothe C, Schunk M, Sothmann P, et al. Transmission of 2019-nCoV infection from an asymptomatic contact in Germany. *N Eng J Med.* 2020;382:970-971.
21. National Center for Immunization and Respiratory Diseases DoVD. Preparing for COVID-19 in Nursing Homes. National Center for Immunization and Respiratory Diseases DoVD; 2020.
22. Cluver L, Lachman JM, Sherr L, et al. Parenting in a time of COVID-19. *Lancet.* 2020;395:E64.
23. Song P, Karako T. COVID-19: real-time dissemination of scientific information to fight a public health emergency of international concern. *Biosci Trends.* 2020;14:1-2.
24. Triggler CR, Bansal D, Abd Farag EAB, et al. COVID-19: learning from lessons to guide treatment and prevention interventions. *mSphere.* 2020;5:e00317-20.
25. Southwell BG, Niederdeppe J, Cappella JN, et al. Misinformation as a misunderstood challenge to public health. *Am J Prev Med.* 2019;57:282-285.