ORİJİNAL ARAŞTIRMA ORIGINAL RESEARCH

DOI: 10.5336/healthsci.2020-77283

The Role of Social Media as an Information Source in COVID-19 Pandemic

COVID-19 Pandemisinde Bilgi Kaynağı Olarak Sosyal Medyanın Rolü

Bahar YÜKSEL[a], Ömer SARILAR[b], Mehmet Hamza GÜLTEKİN[b], Ufuk ÇAĞLAR[b], Mücahit GELMİŞ[b], Faruk ÖZGÖR[b]

[a]Department of Obstetrics and Gynecology, Esenler Maternity and Children's Hospital, İstanbul, TURKEY
[b]Clinic of Urology, Haseki Training and Research Hospital, İstanbul, TURKEY

ABSTRACT Objective: To reveal the role of social media as an information source during coronavirus disease-2019 (COVID-19) pandemic. **Material and Methods:** The present study is planned as a cross-sectional, multi-center survey study starting from the first week of COVID-19 pandemic. A custom-made survey was prepared, eliciting participants' demographic data, preferred source of the information about COVID-19 disease, and their preference for usual social media platforms and the type of posts. The survey also aimed to determine how the use of social media changed the daily behavior of participants. **Results:** In total, 107 women, 105 men with a mean age of 33.3±10.3 were included in the study. Social media, television, and web sites were the most preferred sources of information about COVID-19 (76.4%, 54.7%, and 53.3% respectively). Before the pandemic era, participants used social media as an information tool for COVID-19 an average of 2.6 times a week, increasing to 7.8 times during the pandemic ($p<0.001$). The average screen time in social media searches for COVID-19 increased from 22 minutes to 117 minutes after the onset of the pandemic ($p<0.001$). The most frequently accessed social media posts were videos from doctors specialized in the pandemic, and the experience of COVID-19 survivors (61.8% and 38.2%, respectively). **Conclusion:** The present study has demonstrated that social media was the most preferable source to get information about COVID-19 pandemic. While the video shares were the most watched contents, the participants expressed that they wanted to watch the videos coming from the doctors the most.

Keywords: Coronavirus; COVID-19; resource guide; pandemics; social media

ÖZET Amaç: Çalışmanın amacı, koronavirüs hastalığı-2019 [coronavirus disease-2019 (COVID-19)] salgını sırasında sosyal medyanın, katılımcıların bilgi kaynağı olarak rolünü ortaya koymaktır. **Gereç ve Yöntemler:** Bu çalışma, COVID-19 salgınının ilk haftasından başlayarak kesitsel, çok-merkezli bir anket çalışması olarak planlanmıştır. Katılımcıların demografik verileri, COVID-19 hakkında bilgi kaynağı tercihleri, sosyal medya platformları kullanım alışkanlıkları ve hangi tür yayınları tercih ettiklerinin değerlendirilmesi için özel bir anket hazırlandı. Anket ile ayrıca sosyal medya kullanımının, katılımcıların günlük davranışlarını nasıl değiştirdiğini belirlemek amaçlandı. **Bulgular:** Ortalama yaşları 33,3±10,3 olan 107 kadın ve 105 erkek çalışmaya dâhil edildi. Sosyal medya, televizyon ve internet siteleri, COVID-19 hakkında en çok tercih edilen bilgi kaynaklarıydı (sırasıyla %76,4; %54,7 ve %53,3). Pandemi döneminden önce katılımcılar, sosyal medyayı COVID-19 hakkında bilgi almak için haftada ortalama 2,6 kez kullanmakta olup, pandemi sırasında ise bu sayı artarak 7,8'e yükselmiştir ($p<0,001$). Aynı doğrultuda, sosyal medyada COVID-19 nedeni ile geçirilen sürenin, pandeminin başlangıcından itibaren 22 dk'dan 117 dk'ya yükseldi gözlemlendi ($p<0,001$). En sık erişilen sosyal medya yayınları, pandemi konusunda uzmanlaşmış doktorların videoları ve COVID-19 mağdurlarının deneyimi olarak görüldü (sırasıyla %61,8 ve %38,2). **Sonuç:** Bu çalışma, COVID-19 salgını hakkında bilgi almak için sosyal medyanın en çok tercih edilen kaynak olduğunu göstermiştir. Video paylaşımları, en çok izlenen içerik görülmekte iken, doktorlardan gelen videoların en çok izlemek istenilen içerik olduğu tespit edilmiştir.

Anahtar Kelimeler Koronavirüs; COVID-19; kaynak kılavuzu; pandemi; sosyal medya

The coronavirus disease-2019 (COVID-19) outbreak was first diagnosed in of late December 2019 in Wuhan, in China's Hubei province.[1] After four months, CoV infection spread to 6 continents and 205 countries, infecting almost seven million, and killing more than 400,000.[2] As a result of the pandemic, causing the closure of borders, social isolation, and the overwhelming of health systems, people began to search for different ways to access reliable information about how to protect themselves from this disaster, including government announcements, hospitals, private doctors, and social media.

Correspondence: Faruk ÖZGÖR
Clinic of Urology, Haseki Training and Research Hospital, İstanbul, TURKEY/TÜRKİYE
E-mail: md.farukozgor@gmail.com

Peer review under responsibility of Turkiye Klinikleri Journal of Health Sciences.

Received: 10 Jun 2020 ***Received in revised form:*** 08 Sep 2020 ***Accepted:*** 09 Sep 2020 ***Available online:*** 13 Jan 2021

Social media is one of the most frequently used sources of information due to its potential for quick, low cost, and easy access. Sorice at al. conducted a study about the influence of social media with 100 patients in plastic surgery center, finding that social media is a useful tool for patient consultation because it optimizes patients' expectations, and facilitates compliance with treatment.[3] Abuhadra and Nazha reviewed studies about social media's effect on myelodysplastic syndrome, noting improvements in patient education, communication between different health institutions and contacts within the health industry.[4]

Although previous research investigated the effect of social media on different medical situations, no study focused on the role of social media on society's search for information during COVID-19 pandemic yet. In the present study, we aimed to reveal the role of social media as an information source during COVID-19 pandemic.

MATERIAL AND METHODS

STUDY DESIGN

The study protocol was approved by Haseki Training and Research Hospital Ethical Committee (2020-134.16.3.20) and done in accordance with the Helsinki Declaration principles. This study is planned as a cross-sectional, multi-center (Haseki Research and Training Hospital, Esenler Maternity and Childrens' Hospital) survey study starting from the first week of COVID-19 pandemic, between the period of march 15th and March 29th. Participants were volunteers recruited from adult patients who applied to hospitals and showed no evidence of COVID-19 disease. Participants who were not literate, had low cognitive functions or did not consent to participate in the study were excluded. Power analysis revealed that 212 participants were required to achieve a power of 0.95 in a test based on α=0.05. A custom-made survey was prepared, eliciting participants' demographic data, preferred source of the information about COVID-19 disease, and their preference for usual social media platforms and the type of posts. The survey also aimed to determine how the use of social media changed the daily behavior of participants (Supplementary 1).

DATA COLLECTION

Above mentioned two clinics participated in the study. In a calm, quiet room, volunteers completed the survey on their own, without interference, under supervision of a nurse. The survey output was recorded onto an excel sheet in a daily manner.

STATISTICAL ANALYSIS

All statistical analysis were made by IBM SPSS Statistics version 20 Windows package program (SPSS Inc., Chicago, IL, USA) .In the descriptive analyses, categorical and nominal data were reported as numbers and percentages, respectively. Continuous variables were presented as mean±standard deviation. Paired sample t-test was used to evaluate mean differences including average social media usage time and average screen time. p values of <0.05 were regarded as statistically significant.

RESULTS

In total, 107 women, 105 men with a mean age of 33.3±10.3 were included in the study. The majority of the participants were educated to tertiary level (61.3%). A total of 14.2% of participants were with comorbidities. Hypertension and diabetes mellitus were the most common comorbidities, with rates of 5.2% and 3.3%, respectively. The total rates for alcohol and smoking were 19.3% and 30.2%, respectively (Table 1).

All except 5 participants (97.6%) used smart phones, and 65.6% of participants used personal computers. Social media, television, and websites were the most preferred sources of information about COVID-19 (76.4%, 54.7%, and 53.3% respectively). Before the pandemic era, participants used social media as an information tool for COVID-19 an average of 2.6 times a week, increasing to 7.8 times during the pandemic ($p<0.001$). The preference for social media use was mainly due to its ease of access (76.4%). The average screen time in social media searches for COVID-19 increased from 22 minutes to 117 minutes after the onset of the pandemic ($p<0.001$).

For participants, Instagram (57.1%) was the most used social media tool, and videos (71.2%) were

TABLE 1: Demographic data of participants (n=212).

Age* (years)		33.3±10.3
Sex (Female/Male)		107/105
BMI* (kg/m^2)		25.2±4.1
Education level		
Below upper secondary		44 (20.8%)
Upper secondary		38 (17.9%)
Tertiary		130 (61.3%)
Socio-economic status		
Low income		41 (19.3%)
Middle income		154 (72.6%)
High income		17 (8.0%)
Working frequency		
Not working		77 (36.3%)
Part-time working		19 (9.0%)
Full-time working		116 (54.7%)
Marital status		
Single		96 (45.3%)
Married		114 (53.8%)
Divorced		2 (0.9%)
Comorbidity		
None		182 (85.8%)
Hypertension		11 (5.2%)
Diabetes mellitus		7 (3.3%)
Pulmonary disease		3 (1.4%)
Cardiovascular diseases		4 (1.9%)
Other		5 (2.4%)
Alcohol use	Yes	41 (19.3%)
	No	171 (80.7%)
Smoking status	Yes	64 (30.2%)
	No	148 (69.8%)

*: Mean±Standard deviations; BMI: Body mass index.

considered the most attractive posts. The most frequently accessed social media posts were videos from doctors specialized in the pandemic, and the experience of COVID-19 survivors (61.8% and 38.2%, respectively). The three topics most frequently searched on social media were "When will the outbreak end?", "the latest state of the disease", and "protection from the COVID-19" (Table 2).

The vast majority of participants stated that after accessing information on social media, they took various measures. The measures, each of which was taken by between 74.5% to 99.5% of participants, were as follows: wearing masks, making greater efforts to apply social isolation, taking a more hygienic

TABLE 2: Participants' use of information tools and social media (n=212).

Source of information	
Newspaper	28 (13.2%)
Television	116 (54.7%)
Social media	162 (76.4%)
Websites	113 (53.3%)
Scientific articles	16 (7.5%)
Smartphone usage	
Yes	207 (97.6%)
No	5 (2.4%)
Personal computer usage	
Yes	139 (65.6%)
No	73 (34.4%)
Frequency of information source usage for pandemic in the last 1 week	5.4±5.2
Frequency of social media usage for pandemic in the last 1 week*	7.8±8.3
Frequency of social media usage for pandemic before the last 1 week	2.6±2.1
Social media tool preference	
YouTube	87 (41%)
Twitter	57 (26.8%)
Instagram	121 (57.1%)
Facebook	48 (22.7%)
Other	25 (11.8%)
Most interested posts in social media	
Video	151 (71.2%)
Picture	48 (22.6%)
Article	79 (37.2%)
Screen time in the last 1 week **minute/day*	117.5±98.9
Screen time before the last 1 week **minute/day*	22.3±12.9
Social media duration **years*	7.7±3.6
Reason for social media preference	
Easy access	162 (76.4%)
Intensive information	70 (33.1%)
Cheap	34 (16.1%)
Reliable	6 (2.8%)
No another source	7 (3.3%)
Receiving information other than health professionals	
Yes	79 (37.2%)
No	133 (53.3%)
Health service preferences	
State hospital	185 (87.2%)
Private hospital	30 (14.1%)
Private doctor	5 (2.4%)
What do the participants seek on social media?	
Videos from doctors	131 (61.8%)
Booklets	7 (3.3%)
Links of related websites	30 (14.1%)
Videos of survivors	81 (38.2%)
Professional books	28 (13.2%)
What subject do the participants want?	
Protection from disease	88 (41.5%)
Correct nutrition style	22 (10.3%)
Current status of the outbreak	88 (41.5%)
When will the outbreak end?	111 (52.3%)
Information about patients	10 (4.7%)

TABLE 3: Changes in participants' daily behaviour after social media use (n=212).

How has your following behaviour changed after social media search?	Yes	No
Do you wear a mask in your daily life?	209 (98.6%)	3 (1.4%)
Do you apply social isolation?	209 (98.6%)	3 (1.4%)
Do you follow hygienic hand washing rules?	211 (99.5%)	1 (0.5%)
Do you stay away from people with flu?	211 (99.5%)	1 (0.5%)
Do you reduce physical contact with people?	211 (99.5%)	1 (0.5%)
Do you reduced touching your face?	207 (97.6%)	5 (2.4%)
Do you increase the balanced diet?	158 (74.5%)	54 (25.5%)
Do you quit smoking?	10 (15.6%)	54(84.4%)
Do you reduced your contact with external surfaces?	210 (99.0%)	2(1.0%)
Do you clean your environments more often?	199 (93.9%)	13(6.1%)

approach to hand-washing, making greater efforts to avoid people with flu, reducing hand contact with faces, making greater efforts to eat a balanced diet, reducing contact with external surfaces, and making greater efforts to clean their living environment. However, only 10 (15.6%) of 64 volunteers who smoked reported quitting (Table 3).

DISCUSSION

The COVID-19 outbreak has caused strict transportation restriction, limited to access health care institutions, and strain on health care systems. Many struggle to obtain accurate information about how to avoid the CoV, the probable duration of the outbreak, and the treatment of the disease. The COVID-19 pandemic has presented an opportunity to evaluate the role of social media as a source of information about the outbreak.[5,6] We found that social media has become the most used source of information about COVID-19 pandemic.

Previous reports have demonstrated the public use of different information sources, including newspapers, scientific articles, television, websites and social media. Khoong et al. stated that smartphone ownership has dramatically changed the ways information is accessed and found that 48.3% patients used social media as primary information source.[7] In another study, Braun et al. investigated information sources of cancer patients and their relatives, and found that for 77.4% of participants, the internet was the major source. Additionally, Braun et al. stated that 49.2% participants reported intensifying social media use, and 80.3% contacted other cancer patients or relatives via social media.[8] In the present study, 97.6% of participants owned a smartphone, and 76.4% obtained information about COVID-19 pandemic from social media.

Social media use has increased over the years. Lissak reported that the access rate of social media increased from 51% to 75% between 2011 and 2013.[9] Another research found that average daily social media usage increased from 90 minutes in 2012 to 144 minutes in 2018.[10] To the best of our knowledge, no study has compared the frequency and duration of social media usage for health information prior to and during COVID-19 pandemic. Our participants' daily frequency of access to social media increased from 2.6 times to 7.8 times after the onset of the pandemic. Moreover, average daily times spent by participants to obtain information about COVID-19 increased dramatically from 22 minutes before the pandemic to 117 minutes in the pandemic era. We believe that transportation restrictions and difficulties in accessing the health system increased reliance on social media for information about COVID-19.

No study has investigated which type of social media post is preferred for COVID-19 information. According to the social media analysis, video posts are more preferred than others, such as articles, pictures, or audio.[11] Akar reported participants between 18-65 years were more likely to use the internet for watching videos and reading personal blogs.[12] In the present

study, video posts were the most interesting social media content for 151 of 212 (71.2%) participants.

Personal protective measures and control of the local environment are important factors in reducing the spread of the pandemic, and increasing protection from COVID-19.[13] In the present study, we observed that the majority of the participants increased preventive measures after social media increased their awareness about COVID-19. Although it is widely known that cigarettes predispose to COVID-19 disease and negatively affect the course of the disease, as we observed, most participants were unable or unwilling to give up.[14] Smoking is a severe addiction, which we believe is intensified by the mental stress caused by the pandemic.

The present research is the first in Turkey to evaluate role of social media on COVID-19 pandemic, and naturally has some limitations. Firstly the study was conducted as survey project, which, by nature, can be affected by inaccurate answers, lack of participant interest, and survey fatigue. To prevent this situation, we arranged for the survey to be completed in a quiet, secure room under nurse observation. Another limitation is that participants were asked to give their estimated duration social media screen time, as no exact time measurement was possible. Lastly, the study focused on a period of only one week; further studies should focus on changes in patterns of social media use during the course of the pandemic.

CONCLUSION

The present study has demonstrated that social media was the most preferable source to get information about COVID-19 pandemic. While the video shares were the most watched contents, the participants expressed that they wanted to watch the videos coming from the doctors the most. According to our results, health professionals should produce high level of quality contents for social media to improve the knowledge of patients about COVID-19 pandemic. Our outcomes could be supported by further prospective, randomized studies with larger cohorts.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Faruk Özgör, Mehmet Hamza Gültekin;* ***Design:*** *Faruk Özgör, Bahar Yüksel;* ***Control/Supervision:*** *Ömer Sarılar;* ***Data Collection and/or Processing:*** *Ufuk Çağlar, Mücahit Gelmiş;* ***Analysis and/or Interpretation:*** *Ufuk Çağlar;* ***Literature Review:*** *Mehmet Hamza Gültekin;* ***Writing the Article:*** *Bahar Yüksel, Mehmet Hamza Gültekin;* ***Critical Review:*** *Faruk Özgör;* ***References and Fundings:*** *Ufuk Çağlar, Mücahit Gelmiş, Ömer Sarılar;* ***Materials:*** *Ömer Sarılar.*

REFERENCES

1. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet. 2020;395(10223):497-506. Erratum in: Lancet. 2020. [Crossref] [PubMed] [PMC]
2. Johns Hopkins University and Medicine. Coronavirus Resource Center. (Date of access: 5.6.2020). [Link]
3. Sorice SC, Li AY, Gilstrap J, Canales FL, Furnas HJ. Social media and the plastic surgery patient. Plast Reconstr Surg. 2017;140(5): 1047-56. [Crossref] [PubMed]
4. Abuhadra N, Nazha A. Online and social media resources for patients with MDS. Curr Hematol Malig Rep. 2018;13(6):570-5. [Crossref] [PubMed]
5. Li HO, Bailey A, Huynh D, Chan J. YouTube as a source of information on COVID-19: a pandemic of misinformation? BMJ Glob Health. 2020;5(5):e002604. [Crossref] [PubMed] [PMC]
6. Yuksel B, Cakmak K. Healthcare information on YouTube: Pregnancy and COVID-19. Int J Gynaecol Obstet. 2020;150(2):189-93. [Crossref] [PubMed]
7. Khoong EC, Rivadeneira NA, Hiatt RA, Sarkar U. The Use of technology for communicating with clinicians or seeking health information in a multilingual urban cohort: cross-sectional survey. J Med Internet Res. 2020;22(4): e16951. [Crossref] [PubMed] [PMC]
8. Braun LA, Zomorodbakhsch B, Keinki C, Huebner J. Information needs, communication and usage of social media by cancer patients and their relatives. J Cancer Res Clin Oncol. 2019;145(7):1865-75. [Crossref] [PubMed]

9. Lissak G. Adverse physiological and psychological effects of screen time on children and adolescents: Literature review and case study. Environ Res. 2018;164:149-57. [Crossref] [PubMed]
10. Young K. The biggest social media trends shaping 2018. (Date of access: 5.6.2020). [Link]
11. Wyzowl. Why video is exploding on social media in 2020. (Date of access: 5.6.2020). [Link]
12. Akar E, Topçu B. An examination of the factors influencing consumers' attitudes toward social media marketing. Journal of Internet Commerce. 2011;10(1):35-67. [Crossref]
13. World Health Organization. Considerations in adjusting public health and social measures in the context of COVID-19: interim guidance, 16 April 2020. World Health Organization. 2020. License: CC BY-NC-SA 3.0 IGO. [Crossref]
14. Brake SJ, Barnsley K, Lu W, McAlinden KD, Eapen MS, Sohal SS. Smoking upregulates angiotensin-converting enzyme-2 receptor: a potential adhesion site for novel coronavirus SARS-CoV-2 (Covid-19). J Clin Med. 2020;9(3):841. [Crossref] [PubMed] [PMC]