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Original Article/Research

Type and reliability of information about coronavirus most frequently shared by social media users



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ABSTRACT

Objective: To identify, investigate and categorize the most frequently shared content related to COVID-19 by social media users.

Methods: The BuzzSumo analytic tool was used to identify the most frequently shared content about COVID-19 between July and August 2020. They were then analyzed and classified into eight main categories according to their topic.

Results: Among 120 articles that were shared 6,189,187 times in total during the analyzed period, the most popular were those that referred to methods for decreasing COVID-19 spread and characteristics. No myths or misinformation were found in the most frequently shared articles. The most popular content included humorous yet educational videos.

Conclusions: The most frequently shared content by social media users is reliable and refers to prevention in the first place. As humorous videos about prevention attracted the most attention, it seems an attractive and potentially effective strategy to foster online preventive behaviors during the pandemic.

Lay Summary: The most popular articles that were shared more than 6 million times in total during the analyzed period of time referred methods for decreasing COVID-19 spread and COVID-19 characteristics. The Internet and social media provide countless opportunities and audiences to deliver accurate knowledge and recommendations on COVID-19 and may contribute to fostering preventive and responsible behaviors.

Introduction

The world has been facing the growing burden of the COVID-19 pandemic since the very first cases of a new virus were reported in Wuhan (China) in December 2019 [1]. The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection has started to rapidly spread among communities through droplets and aerosols [2]. With hundreds of millions confirmed cases and a death toll approaching 9 million at the end of 2021 [3], the pandemic has become a global public health threat on a scale unseen since the Spanish flu. It also quickly spurred the public on to seek information from different sources and sharing them through social media platforms.

In 2020 there were approximately 3.6 – 4 billion social media users, while an average time spent online was on the rise [4,5]. These numbers account for about a half of Earth inhabitants. Among many causes of this phenomenon, one of the most recent is that people turn to social media

as a coping strategy against stress and anxiety caused by lockdowns and the pandemic itself [6].

Internet and social media are undoubtedly one of the key sources of information on COVID-19 [7]. It has been a subject of extensive research since the pandemic unfolded that covered areas such as misinformation [8], infodemic [9], sentiment [10], trends [11] and other. Nonetheless, questions about type of content shared between users most frequently and whether it is published and shared responsibly remain open. The objective of this study was to take a broader look at news sharing behaviors and categorize Covid-19 related subjects most frequently shared by social media users. This study continues on our previous research that found information on social media about COVID-19 to be usually accurate (80% of all) but account for less shares (64%) which meant that inaccurate information spread faster than accurate [12]. The results raised a general question about what type of information is shared most often and this study is the attempt to answer it.

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Methods

We have used the BuzzSumo analytic tool which provides data on content published and shared on the most popular social media platforms (Facebook, Twitter, Reddit, Pinterest). It allows users to identify content that received the most shares, links and comments. BuzzSumo has been used in numerous original research papers published by medical and public health journals [13,14].

We had been collecting data on a weekly basis between 21 July 2020 and 31 August 2020. This timeframe was chosen as it reflected the period of certain relaxation among people between two waves of the pandemic and thus excluded extreme sentiments. The search terms were “coronavirus” and “COVID-19”. We excluded “SARS-CoV-2” as the number of returned articles was insignificant. The search process lasted for six weeks and included search sessions conducted once a week that covered the past seven days (12 searching sessions in total – 6 for each keyword). The articles were selected on the basis of the *total engagement* parameter in BuzzSumo, which is a sum of reactions, comments and shares in all social media analyzed in this tool. The top 10 articles for each keyword were included in the analysis. Because Facebook was the most engaging platform for users (95% of an entire engagement), we decided to limit the analysis to articles shared on Facebook. There were not any other criteria such as language or type of article (text, video etc.) other than the timeframe of the past seven days. The content was excluded whenever there was no free access, no access from the European Union, no English transcription in videos or links were expired.

All the returned articles were grouped into subject categories. One article could be classified in more than one category. The categories were predetermined by the means of discussion among authors and know-how from other highly cited publications [15], however they also evolved as the search process progressed. The aim was to create a limited number of clearly defined categories. The categorization of articles involved a narrow and dichotomous analysis of accuracy to determine whether something was or was not misinformation.

Results

The study covered 120 articles analyzed in detail that were shared 6189,187 times.

We eventually selected eight categories: COVID-19 characteristics, impact of COVID-19, politics and economy, opinions, methods for decreasing COVID-19 spread, methods for treating COVID-19, people’s stories, and debunking myths and misinformation. Although we initially assumed the category of myths and misinformation, it was eventually replaced by the *debunking myths and misinformation* because there were in fact no myths or misinformation in the top 20 every week but rather their explanations only. Descriptions and examples of titles for each category are presented in Table 1. The detailed list of all analyzed articles and how they were categorized is included in the supplementary material.

Of the eight topics identified among articles mostly shared in social media platforms throughout the analyzed period of time, social media users most frequently shared with each other those regarding *methods for decreasing COVID-19 spread* ($n = 2\,760\,308$; 18.5%). Articles on *debunking myths and misinformation* about coronavirus were shared least often ($n = 459\,300$; 3.1%) (see Table 2).

Fig. 1 shows the distribution of shares for topics discussed in the articles about coronavirus. The dynamics of sharing topics has changed over time. Users were most active in the third week of searches when the number of “passes forward” reached its height for most of the analyzed topics. The exceptions were articles from the following categories: politics and economy, people’s stories, and debunking myths and misinformation. The highest number of shares in the third week referred to the methods for treating COVID-19 ($n = 1354,500$), methods for decreasing COVID-19 spread ($n = 1223,300$) and COVID-19 characteristics ($n = 1030,700$).

Table 1

Main categories.

Category	Description	Example by article title
COVID-19 characteristics	Content such as epidemiological data, the impact of underlying conditions, symptoms and severity of infection. Moreover, there are also outbreak news with the description of where and when the outbreak occurred and who have been affected.	“Nearly 100,000 children test positive for coronavirus in past two weeks”
Impact of COVID-19	How COVID-19 pandemic influenced the emergence of local restrictions, such as closing schools and public places, involving the police to enforce compliance. It is also about long-term impact on the functioning of societies and the emergence of problems in healthcare system.	„A Texas hospital overwhelmed by coronavirus may send some patients home to die“
Politics and economy	Economic and political news, with reference to COVID-19 that were published worldwide during the pandemic.	“DNC 2020 Day 1: Michelle Obama, former rivals rally behind Joe Biden as they take aim at Trump’s COVID-19 response”
Opinions	Contains subjective opinions referring to coronavirus pandemic, including official authorities opinions, suggestions, thoughts but also skeptical, religious and cultural beliefs among people.	“Fauci tells MarketWatch: I would not get on a plane or eat inside a restaurant”
Methods for decreasing COVID-19 spread	Objective actions and opinions. Made out of the articles about restrictions, recommendations and strategies in fighting coronavirus that helps control the spread. Another were tests, and preventive measures (face masks, quarantine).	„New York City reported zero COVID-19 deaths for 3 straight days — now it’s setting up checkpoints for visitors“
Methods for treating COVID-19	Treatment methods, development of a vaccine, research results, medical information.	“Compulsory vaccination for everyone is the only way to defeat COVID-19”
People’s stories	Stories of people killed or infected by coronavirus.	“They lost their mom and dad to coronavirus - 15 days apart”
Debunking myths and misinformation	Articles that discussed misinformation and myths on coronavirus. the description of events related to the misinformation spread, the examples of such content and the explanation through evidence-based facts why it was myth.	“Group of “America’s Frontline Doctors,” Hold Press Conference at Capitol Hill About COVID-19 Calling Out “Massive Disinformation Campaign”

The time analysis showed that *people’s stories* and *debunking myths and misinformation* had the lowest number of shares. Moreover, interest and willingness to share articles on this topic with others decreased from the second week, and remained at the lowest position compared with other topics ever since.

Additionally, we checked whether sharing of articles was related to new cases of coronavirus infection or the number of deaths globally in specific time ranges, but no significant associations were found.

Discussion

The COVID-19 pandemic with millions of infections resulting in

Table 2
Number (n,%) of shares for topics during analyzed period.

Search range	COVID-19 characteristics	Impact of COVID-19	Politics and economy	Opinions	Methods for decreasing COVID-19 spread	Methods for treating COVID-19	People's stories	Debunking myths and misinformation
I	403 100 20.1%	364 100 18.2%	125 000 6.2%	431 900 21.6%	397 000 19.8%	230 200 11.5%	45 900 2.3%	4 400 0.2%
II	663 900 20.8%	243 300 7.6%	789 700 24.7%	242 600 7.6%	371 600 11.6%	225 400 7.1%	378 600 11.9%	275 700 8.6%
III	1 030 700 16.6%	725 600 11.7%	567 400 9.3%	951 700 15.3%	1 223 300 19.7%	1 354 500 21.8%	223 800 3.6%	135 200 2.2%
IV	186 400 11.6%	132 000 8.2%	367 800 22.9%	279 000 17.3%	376 300 23.4%	182 500 11.3%	61 279 3.8%	24 500 1.5%
V	122 200 15.6%	49 600 6.4%	100 300 12.8%	122 100 15.6%	221 200 28.3%	128 600 16.5%	26 800 3.4%	10 300 1.3%
VI	349 600 32.4%	34 700 3.2%	118 900 11.0%	319 900 29.7%	171 108 15.9%	45 408 4.2%	29 300 2.7%	9 200 0.9%
Number of shares in total	2 755 900 18.5%	1 549 300 10.4%	2 078 100 14.0%	2 347 200 15.8%	2 760 308 18.5%	2 166 608 14.6%	765 679 5.1%	459 300 3.1%
Number of articles	55	31	43	53	59	35	20	11

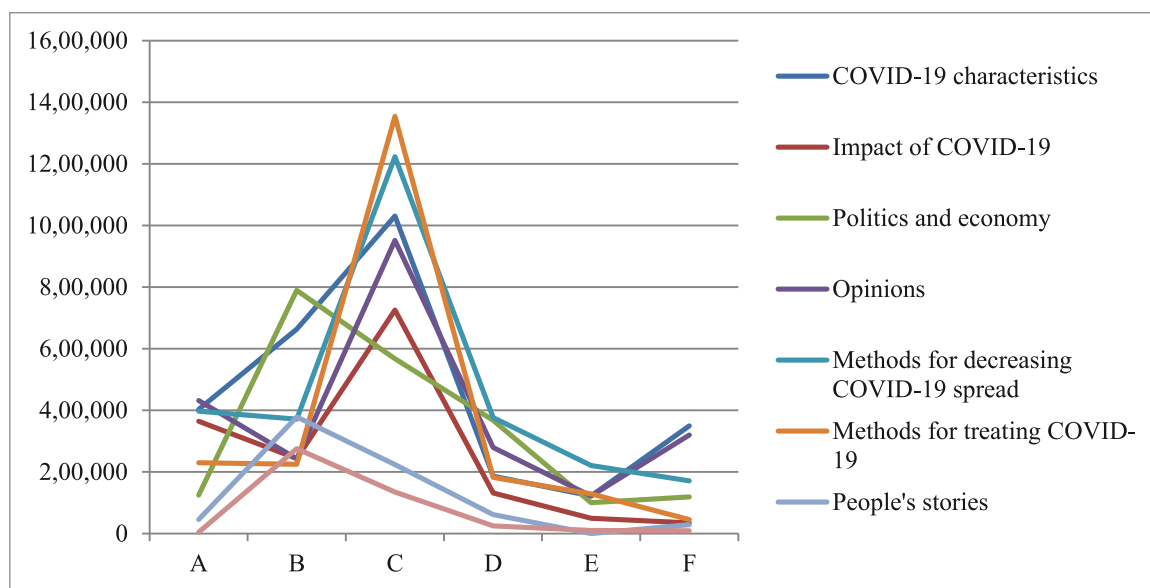


Fig. 1. The distribution of number of shares for topics identified during analyzed period.

overloaded healthcare systems is a serious public health crisis. There had already been numerous COVID-19 related papers so far suggesting that such critical conditions rapidly boost dissemination of information and use of social media [16]. As the Internet is already likely to be the most common source of health information [17–19], the environment of a stressful infodemic may pose real threats as millions of people suddenly seek new information [20,21]. Nevertheless, Zhao et al. [22] found that during the pandemic fear, anxiety and lack of knowledge prompted people to search as much as possible for information focused on preventative methods. The results of our study seem to follow such pattern. The methodology allowed us to identify the most popular topics that social media users were willing to discuss in wider groups and share with friends and families. We found that the most popular shares indeed referred to methods for decreasing COVID-19 spread (objective scientific information) and COVID-19 characteristics (such as epidemiological data) as described in Table 2.

The important finding was that misinformation was not an issue although we initially hypothesized such category would be included. This however seems to be in line with results another large study, the

University of Melbourne and WHO survey that referred to social media and COVID-19 [23]. Almost half of the 23,000 respondents (49.3%) said they were most likely to share scientific content on COVID-19 which was the top choice. Thus, one may assume that COVID-19 related content is shared responsibly and likely to foster preventive and responsible behaviors - at least when it comes to social media and sharing information with friends. This may seem to be in odds with some studies and concerns that social media are leading source of misinformation. However, our analysis focused on sharing of articles which usually refers to friends so the finding seems to support a natural behavior of sharing reliable information rather than misinformation with people we know. Thus, in this wider perspective social media are first of all a source of reliable information. Other Covid-related studies support this observation indicating that users are aware and concerned about risk of being exposed to fake news and follow official sources [24,25].

The surge in number of shares of political content in the second week seemed to be related to a trend in stories of people affected by COVID-19. It covered the time of media reporting about new infections and COVID-related deaths among American politicians (Herman, Gohmert).

As these articles were shared particularly frequently, it seems that health information and social media are simply subject to the phenomenon of celebrities and personalities and the attention they receive. Perhaps, this is the way forward in making people realize threats and motivates them to change their behaviors. Mututwa et al. [26] suggested that celebrities with a significant social media impact were able to successfully counter disinformation and promote awareness.

The piece of content with the highest number of shares in the entire study contained a link to the video educating people about coronavirus prevention. It starred an Alabama school principal who made a parody of a famous hit song to increase awareness among students [27]. Perhaps, in the era of infodemic this may serve as an inspiration on how to provide reliable health information in a viral way. The British National Health Service apparently tried this phenomenon and released a rap song encouraging vaccination [28]. The similar example comes from Poland and the Chief Sanitary Inspector who released a series of viral musical and humorous Youtube videos performed by himself that promoted responsible health behaviors among youngsters [29]. It gained substantial and positive feedback. Some studies also already indicated that YouTube may be perceived as a useful source of medical information during pandemic [30].

This study analyzed the period after the first peak of the pandemic in March 2020 and before the second peak in autumn 2020. It covered a time of loosened restrictions and certain relaxation among people, despite all the CDC and WHO recommendations still in place [31,32].

Strengths and limitations

The strength of this study is that all of the articles were analyzed comprehensively (see Supplementary material). However, the work covered a limited period of six weeks which may not be considered a representative sample in a quickly changing informational landscape on social media. Second, the research team did not analyze the comments section which may have impacted the accuracy of some assessments.

Conclusions

The results show that social media users are most likely to share objective, reliable and evidence-based information on COVID-19. This may seem in odds at first with many other studies suggesting that misinformation is a serious issue, however our study focuses on what type of information people share with their friends through social media. It should not come as a surprise that they are willing to share reliable information and suggests that there is a need to provide people with reliable and evidence-based information about COVID-19 because they are willing to share it. This is particularly relevant during pandemics. As social media already have billions of users that interact with each other, it is vital to effectively use this potential. Viral, humorous video content may serve this purpose.

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Patient consent

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CRediT authorship contribution statement

Karolina Obiała: Conceptualization, Investigation, Data curation, Writing – original draft. **Justyna Obiała:** Conceptualization,

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Declaration of Competing Interest

None declared.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.hlpt.2022.100626.

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