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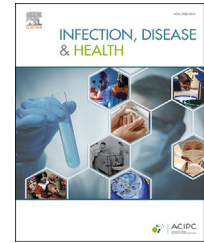
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Research paper

News coverage of the COVID-19 pandemic: Missed opportunities to promote health sustaining behaviors

Corey H. Basch ^{a,*}, Grace Clarke Hillyer ^b, Zoe Meleo- Erwin ^a,
Jan Mohlman ^c, Alison Cosgrove ^a, Nasia Quinones ^a

^a Department of Public Health, William Paterson University, Wayne, NJ, 07470, USA

^b Department of Epidemiology, Mailman School of Public Health, Columbia University NY, NY, 10032, USA

^c Department of Psychology, William Paterson University, Wayne, NJ, 07470, USA

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Abstract *Background:* Given that individuals may make health decisions based on mass media coverage, and given that such decisions have broad consequences in the case of highly contagious infectious disease, it is imperative that public health practitioners are aware of mass media coverage on emerging health threats such as COVID-19. The purpose of this study was to examine the content of news segments covering COVID-19 posted on-line.

Methods: Using the Google Videos function on a cleared browser, all videos identified from January and February, 2020 were archived by URL for analysis. After applying exclusion criteria, a total of 401 remained, comprising the sample. Content categories derived from trusted sources were applied to assess the content of broadcast news segments pertaining to COVID-19 on Google Videos.

Results: The most common topic mentioned across all videos was death and the death rate (43.6%) and many connoted anxieties surrounding the COVID-19 outbreak (37.4%). Critically important information about the prevention of COVID-19 spread received little attention. For example, only 3.0% of videos discussed coughing into or blowing one's nose into a tissue and throwing the tissue away, 6.2% talked about wearing a facemask when caring for the ill, and 8.8% covered disinfecting highly touched objects and surfaces. International videos more often presented captions and English subtitles (with and without narration) (7.8% vs. 0.9%, $p = 0.018$) and even more frequently discussed death and the death rate associated with COVID-19 (56.9% vs. 41.7%, $p = 0.04$).

Conclusion: Coupled with the resultant increase in negative emotion, the majority of videos missed an opportunity to reframe messages to encourage and promote coping strategies and health sustaining behaviors. Future videos should avoid contributing to negative emotion.

* Corresponding author. Department of Public Health; William Paterson University, University Hall, Wayne, NJ, 07470, USA.
E-mail address: baschc@wpunj.edu (C.H. Basch).

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Highlights

- Prevention information on reducing transmission was rarely covered in the news videos included in this sample.
 - Death and death rate were the most commonly mentioned aspect of COVID-19 in these news videos.
 - Forthcoming news clips should strive to demonstrate ways to enhance safety.
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Introduction

As of this writing, the world is approximately four months into the COVID-19 pandemic, which began in Wuhan, Hubei Province, China in December of 2019. Though diminishing hospitalizations suggest that mitigation strategies may be slowing the spread of SARS-CoV-2 (the virus that causes COVID-19) in hotspots such as Northern Italy [1] and New York City [2], other parts of the world – which had previously made strides in flattening the curve – may be experiencing a second wave of cases [3,4]. In that SARS-CoV-2 is a novel virus, clearly much is uncertain and unknown at this juncture. Nevertheless, based on both the available science and the current lack of effective treatment, top public health experts [5] and recent modeling [6] have warned of probable reoccurrences of COVID-19, perhaps for years to come. In such a scenario, “prolonged or intermittent” [6] prevention measures will be necessary to stave off high numbers of critical cases and the attendant surge on hospital intensive care units.

By and large, recommended prevention measures aimed at individuals and coming from top public health bodies such as the Centers for Disease Control (CDC) [7] and World Health Organization (WHO) [8] remain unchanged since the early days of the pandemic: To minimize risk to oneself and to limit community spread, individuals should minimize close contact with others; frequently wash hands for a minimum of 20 s; avoid touching eyes, nose, and mouth; cover coughs and sneezes with an elbow or a tissue (which should then be disposed of immediately); clean and disinfect high-touch surfaces; and seek medical care early in the case of fever, cough, and difficulty breathing. Additional symptoms now include having at least two of the following: chills, repeated shaking with chills, muscle pain, headache, sore throat, and new loss of taste or smell [9]. Some guidelines, however, have shifted as, in early April 2020, the CDC [10], though not the WHO [11], began recommending the public wear cloth facemasks in public settings wherein standard social distancing measures would prove difficult to enact. In order to underscore social distancing, governors in most, though certainly not all, states in the United States (U.S.) implemented shelter in place directives in March and April of 2020.

The uneven response within the U.S., delays and ongoing challenges with testing, dire shortages of personal protective equipment for hospital and other essential workers,

devastating economic impacts, and the stark reality that the most marginalized are, once again, at greatest risk for severe and critical cases, collectively underscore the fact that investment in both public health infrastructure and the social determinants of health at the national level would comprise the strongest response to addressing future outbreaks. In the meantime, prevention, mitigation, and suppression rely, to no small extent, on the collective impacts of individual actions. Yet to be effective, such individual actions must be grounded in consistent, reliable public health information that balances a transparent, accurate assessment of risks with evidence-based, solution-focused messages [12].

Of course, providing information to the public on emergent, complex, and rapidly changing health threats is no easy task, even for public health experts. However, when the information individuals rely on comes not from public health experts but rather from the mass media, prevention efforts may be at risk. Previous studies have found that news coverage of health topics is frequently brief in nature, is conveyed by journalists who often lack scientific and/or medical training, can be given to hyperbole and commercialism, and is driven by the time pressures of the 24-h news cycle [13–15]. The consequences to public health are not negligible. As Voss [16] has argued, “inadequate, misleading, or incomplete news reporting constitutes a public health threat.” Given that individuals may make health decisions based on mass media coverage, and given that such decisions have broad consequences in the case of highly contagious infectious disease, it is therefore imperative that public health practitioners are aware of mass media coverage on emerging health threats such as COVID-19. At the time of this study, we did not identify any published papers that specifically examined the content of news segments covering COVID-19 posted on the internet, which was the aim of the current study.

Methods

Using the Google Videos (2012) function on a cleared browser, all videos of broadcast news segments identified from January and February, 2020 under the search term coronavirus (the terminology most commonly used at the time) were archived by URL for analysis. For the purpose of this study, broadcast news segments were defined as news clips that were intended for a network presentation. The

initial search yielded 837 videos, which were vetted for inclusion criteria (English language, non-repeating, news clip, and appropriate to the COVID-19 outbreak), after excluding videos that did not meet these criteria, a total of 401 remained, comprising the sample. Using content categories used in prior studies, which focused on an array of COVID-19 content videos posted on YouTube [17,18], the content of news segments posted on Google videos was evaluated by two trained research assistants (AC and NQ). By April 2020, the U.S. had more positive cases and deaths resultant of COVID-19 than any other country. We aimed to characterize how the U.S., the global hotspot, presented facts in the face of the problematic aspects of the situation (e.g., delays and ongoing challenges with testing, dire shortages of personal protective equipment for hospital and other essential workers) relative to other countries with more coordinated response to the outbreak.

To evaluate differences between videos produced in the U.S. vs. international videos, we conducted a univariable analysis using the chi square test for categorical variables and ANOVA for continuous variables. A subset of 20 randomly selected videos was reviewed independently by each research assistant and a Cohen's kappa was calculated. Interrater reliability was found to be excellent ($k = 0.91$). All analyses were performed using SPSS version 26 (IBM SPSS, Armonk, NY).

Results

Of the 401 videos examined, 87.3% ($n = 350$) were produced in the U.S. The mean length of the videos was 3.4 min [SD 3.5] and the majority (88.3%) were narrated by a presenter (Table 1). The most common topic mentioned across all videos was death and the death rate (43.6%) and many connoted anxieties surrounding the COVID-19 outbreak (37.4%). Critically important information about the prevention of COVID-19 spread received little attention. For example, only 3.0% of videos discussed coughing into or blowing one's nose into a tissue and throwing the tissue away, 6.2% talked about wearing a facemask when caring for the ill, and 8.8% covered disinfecting highly touched objects and surfaces. International videos more often presented captions and English subtitles (with and without narration) (7.8% vs. 0.9%, $p = 0.018$) and even more frequently discussed death and the death rate associated with COVID-19 (56.9% vs. 41.7%, $p = 0.04$).

Discussion

The current analysis reveals several important factors of this sample of broadcast news segments housed on Google Videos. There were several differences between U.S. and international videos. Those originating in the U.S. were of shorter duration, less likely to include captions or subtitles, and less likely to mention death or death rates. Despite the fact that videos were ostensibly meant to inform and assist the public in the midst of the COVID-19 pandemic, we argue that they missed the target in several ways. First, the popular focus on death and dire outcomes (found more often in international videos, but also prominent in U.S. videos) was not optimal, and may have elevated anxiety

and other negative emotions in viewers. In addition to the disadvantages negative moods incur individuals, they can also lead to maladaptive behaviors (e.g., overbuying supplies, committing acts of racism or microaggressions toward marginalized populations). As noted in prior studies of crisis message content [19,20], depending on perceived levels of crisis predictability and controllability, recipients of media messages are prone to emotions such as anger, fear, and sadness in addition to ambient levels of anxiety already being experienced due to the crisis itself [21]. An alternative approach would be to promote distress tolerance and emotional resilience rather than inflate fear, anger, or other negative states [22,23].

Coupled with the resultant increase in negative emotion, the majority of video messages missed an opportunity to reframe messages to encourage and promote coping strategies and health sustaining behaviors. Some recommendations for coping in addition to the safety measures mentioned above include using and offering emotional support, applying stress reduction techniques, and exercising compassion toward self and others [21].

Alternatively, there could be increased efforts by the media to limit news content to information derived from health care professionals or government health agencies during pandemic crises. Even in the absence of such information, however, it should be possible for news agencies to promote and reinforce basic health sustaining practices such as hand washing and keeping distance from those who are ill to a greater degree than what was found here. Should future news segments disseminate such advice, this could be an effective mitigation strategy. A final recommendation is that during public health crises, public health professionals redouble their efforts to provide accurate and reliable information to news outlets and correct misinformation. This might involve reaching out to media outlets with offers to serve as guest correspondents, and, in the case of public health bodies such as state departments of health, issuing regular press releases. Particularly given the need for up-to-the-minute reporting in novel and emerging health threats, public health professionals can translate complex scientific and epidemiological information that both journalists and the lay public may struggle to understand. Doing so might help increase the uptake of recommended prevention, mitigation, and suppression strategies and curb the adoption of unproven and potentially dangerous practices.

This study had several limitations that bear upon the interpretation of findings. A sample of videos from the earlier days of the COVID-19 pandemic were selected for investigation. It is possible that later news segments contained different information, as knowledge of the virus and pandemic increased rapidly over time. The small sample size and cross-sectional design further hinder the ability to generalize the findings. In addition, unlike videos stored on on-line platforms, Google Videos does not note the number of views to determine how popular a video is.

Despite these limitations, one obvious conclusion can be drawn. Forthcoming news segments should strive to demonstrate ways to enhance safety (e.g., how to properly wear a face mask) [24] and give individuals a sense of hope (e.g., present strategies for building back the work force and economy) [25] during crises. The media have a

Table 1 Characteristics and content of COVID-19 broadcast news segments, January–February, 2020.

	Total N = 401	United States N = 350	International N = 51	P value
VIDEO CHARACTERISTICS				
Length (minutes)				0.08
Mean [SD]	3.4 [3.5]	3.3 [3.5]	4.3 [4.3]	
Range	0.1–25.2	0.1–25.2	0.5–24.5	
Presentation				0.018
Animated	40 (10.0)	35 (10.0)	5 (9.8)	
Live presenter	354 (88.3)	312 (89.1)	42 (82.4)	
Captioned only/English subtitles	7 (1.7)	3 (0.9)	4 (7.8)	
CONTENT				
Mentions anxiety				0.30
Yes	124 (30.9)	105 (30.0)	19 (37.3)	
No	277 (69.1)	245 (70.0)	32 (62.7)	
Suggests anxiety				0.52
Yes	150 (37.4)	133 (38.0)	17 (33.3)	
No	251 (62.6)	217 (62.0)	34 (66.7)	
Mentions death and death rates				0.04
Yes	175 (43.6)	146 (41.7)	29 (56.9)	
No	226 (56.4)	204 (58.3)	22 (43.1)	
Hand hygiene				0.80
Yes	68 (17.0)	60 (17.1)	8 (15.7)	
No	333 (83.0)	290 (82.9)	43 (84.3)	
Avoid close contact with those who are sick				0.87
Yes	90 (22.4)	79 (22.6)	11 (21.6)	
No	311 (77.6)	271 (77.4)	40 (78.4)	
Stay home when ill				0.69
Yes	79 (19.7)	70 (20.0)	9 (17.6)	
No	322 (80.3)	280 (80.0)	42 (82.4)	
Coughing into/blowing nose with a tissue then throwing it away				0.19
Yes	12 (3.0)	9 (2.6)	3 (5.9)	
No	389 (97.0)	341 (97.4)	48 (94.1)	
Facemask for protection when caring for the sick				0.06
Yes	25 (6.2)	25 (7.1)	0 (0.0)	
No	376 (93.8)	325 (92.9)	51 (100.0)	
Facemask for protecting others if you are sick				0.11
Yes	41 (10.2)	39 (11.1)	2 (3.9)	
No	360 (89.8)	311 (88.9)	49 (96.1)	
Facemask but not according to CDC guidelines				0.45
Yes	39 (9.7)	36 (10.3)	3 (5.9)	
No	361 (90.0)	313 (89.7)	48 (94.1)	
Clean and disinfect highly touched objects and surfaces				0.18
Yes	35 (8.8)	28 (8.0)	7 (13.7)	
No	366 (91.3)	322 (92.0)	44 (86.3)	

valuable opportunity to disseminate much needed information as well as reassurance during the COVID-19 pandemic and can thus be considered an imperative crisis management tool.

Ethics

This study does not include human subjects, and as such, was not subject to Institutional Review Board approval at William Paterson University.

Authorship statement

CH Basch conceptualized the study. AC and NQ collected the data, GCH conducted the data analysis. All authors contributed to the manuscript production.

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Provenance and peer review

Externally peer reviewed.

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