COVID-19 Pandemic-Related YouTube Videos' Effects on Mental Health of Viewers

Abstract

COVID-19 pandemic posed serious mental health challenges to people around the world, especially for vulnerable populations who had underlying mental illness and behavioral problems to tackle. I summarized 6 categories related to mental health based on World Health Organization's "#HealthyAtHome - Mental health" report. Then, I collected the categories of 325 COVID-19 pandemic-related YouTube videos, which had over 1 million views, in total by using 2 keywords "COVID-19" and "Quarantine" separately. "COVID-19" videos were mostly on physical protection against the virus, while "Quarantine" videos provided insights on adjusting to new ways of living. In conclusion, there should be more varieties in content creation, particularly about maintaining social connections remotely and medical guidance for the vulnerable populations. Social media being a key for communication and information transmission, more so with social distancing, providing more varied content other than newsfeeds to suffice the need of mental health would be pivotal.

<u>Background and Significance</u>

Prior to the COVID-19 pandemic, one in every 6 or 7 people globally experienced one or more mental or substance use disorders (Ritchie). New realities of social isolation, temporary unemployment, and worry over getting infected put the ever-increasing mental health illness rate on a further strain (Panchal et al.). While the attention centered around protective measures to combat the physical threat, resources devoted to preventing mental health consequences were comparatively much less (Lieberman and Olfson). Meanwhile, in the United States alone, 45% adults reported a negative effect of this pandemic on their mental health (Panchal et al.). People with pre-existing vulnerabilities may be challenged substantially to develop exacerbated stress-related conditions (Lieberman and Olfson). To a more serious extent, suicidal rate may continue to be on the rise (Lieberman and Olfson). Confronting this issue, the World Health Organization offered a couple of suggestions to take care of our mental health and help those with extra need – listen to advice and recommendations from authorities; maintain a daily routine that include eating healthily, exercising regularly, and balancing time for work and rest; minimize newsfeeds that create distress; keep in touch with close contacts by remote measures; continue to take medication and receive treatment for mental health disorders, alcohol and drug abuse, gambling behaviors etc. ("#HealthyAtHome"). Given the pervasiveness of social media, I would like to analyze COVID-19 pandemic-related YouTube videos' role in influencing the mental health states of viewers according to the previous criteria.

<u>Methods</u>

I chose "COVID-19" and "Quarantine" to put into YouTube's search bar separately, as the vast majority of videos related to this coronavirus pandemic included at least one of the two keywords either in their titles, hashtags, or contents. I recorded view counts for videos and ended lives that have more than or equal to 1 million cumulative views, the view counts were rounded to millions with 1 decimal place. Data of "COVID-19" videos were last updated on June 12th, 1:59P.M. EST, and data of "Quarantine" videos were last updated on 12:54P.M. EST. The time difference was due to the process of manual recording but had little effect on the numbers because of their large unit. Moreover, there were 6 categories relevant to mental health: "Keep Informed About Advice and Recommendations," "Healthy Routine," "Newsfeed that Causes Anxiety and Stress," "Social Contact by Telephone and Online Channels," "Medication for Underlying Conditions (Mental Health, Alcohol, Drug Use, Gambling)," and "Entertainment." I put "Y" for "Yes" under one or more categories each video belonged to. The number of videos of each category and its percentage compared to the total number of videos were calculated with Excel. Visualizations and boxplot statistics for view counts were generated by tableau.

<u>Results</u>

Comparison of Percentage of Number of Videos by Category between Keywords "COVID-19" and "Quarantine"
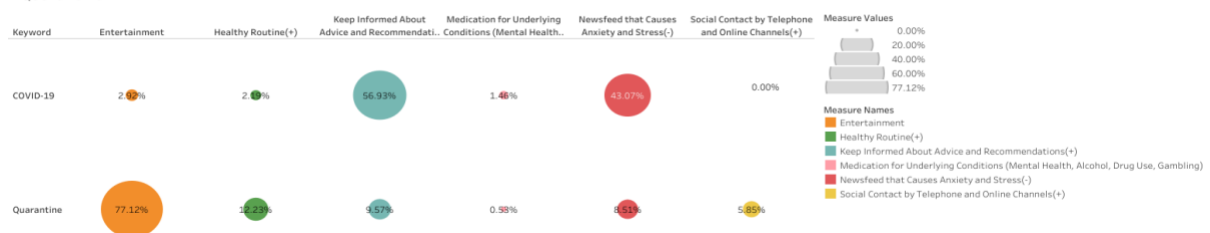
The percentage added up in each row to more than 100% since videos that belonged to multiple categories existed. "Keep Informed" and "Newsfeed" were dominant among "COVID-19" videos, and "Entertainment" predominated "Quarantine" videos. Cross-examination between the two keywords showed that "COVID-19" videos focused more on reporting the

current situation, pathophysiology, and offering self-protection advice, while "Quarantine" videos emphasized on tackling the lockdown and killing boredom. Notably, "Social Contact" and "Medication for Underlying Conditions" remained the two categories with the lowest percentage of number of videos for both keywords. More videos of these two areas should be generated to fill in the gap.

Side-by-Side Bar Chart of Number of Videos by Category of Keywords "COVID-19" and "Quarantine"
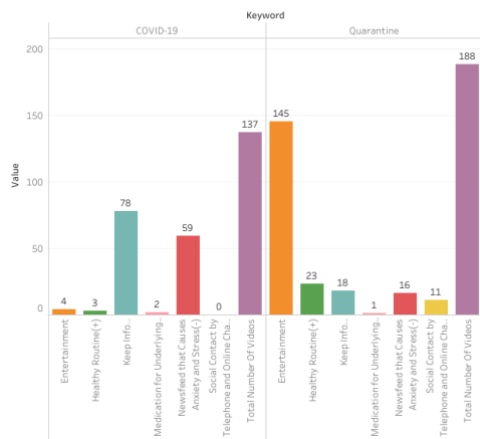
There were more "Quarantine" videos than "COVID-19" videos that got over the 1.0M views benchmark. In general, "COVID-19" videos had less variety than "Quarantine" videos, since 4 out of 6 categories had fewer than 5 videos. Strikingly, there was 0 "COVID-19" video that stressed on the importance of social contact, potentially because the videos focused more on the virus than lifestyle changes.

It's worth noting that "Newsfeed" was the single category that influenced mental health negatively among the 6 categories. For keyword "COVID-19," the number of "Newsfeed" videos was alarming since it was one of the two leading categories. For keyword "Quarantine," the number of "Newsfeed" videos was at a much more appropriate level as the second to last category in terms of number of videos.

Video Viewership Boxplot by Category of Keyword "COVID-19"
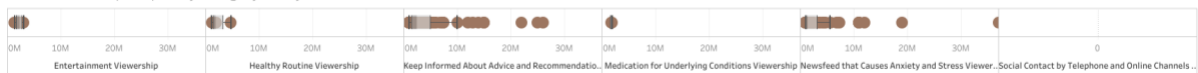
Video Viewership Boxplot by Category of Keyword "Quarantine"
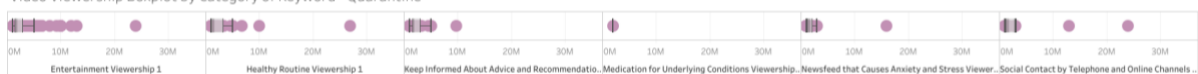
Darker shade covered first quartile (low hinge) to median, and lighter shade covered median to third quartile (upper hinge). The boxplots displayed that all the distributions were right skewed, except the "Medication" category which had too few data points to tell the shape of distribution by examining the visualizations. Those distributions had mean greater than their median. In addition, the 75th percentile for all categories for both keywords remained lower than or equal to 5 million, while all the outliers had more than 10 million views. The above findings were probably the result of exponential view count growth by YouTube's algorithm of putting videos with more views higher up among the search results. Consistency was exhibited between the categories with high numbers of videos and with many outliers, "Keep Informed" and "Newsfeed" amid "COVID-19" videos and "Entertainment" amid "Quarantine" videos, indicating that the categories with the most videos produced also had more exceptionally high view counts, lagging other categories far behind both in terms of quantity and single-video influence.

Boxplot Statistics for Viewership by Category of Keywords "COVID-19" and "Quarantine"

Keyword	Category	Minimum	Low Whisker	Low Hinge	Median	Upper Hinge	Upper Whisker	Maximum
COVID-19	Entertainment	1,400,000	1,400,000	1,800,000	2,400,000	2,850,000	3,100,000	3,100,000
	Healthy Routine(+)	1,200,000	1,200,000	1,600,000	2,000,000	3,400,000	4,800,000	4,800,000
	Keep Informed About Advi..	1,000,000	1,000,000	1,500,000	2,500,000	5,000,000	10,000,000	26,000,000
	Medication for Underlyin..	1,700,000	1,700,000	1,700,000	1,800,000	1,900,000	1,900,000	1,900,000
	Newsfeed that Causes An..	1,000,000	1,000,000	1,200,000	1,400,000	3,300,000	5,600,000	37,000,000
	Social Contact by Telepho..							
Quarantine	Entertainment	1,000,000	1,000,000	1,500,000	2,000,000	3,000,000	5,100,000	24,000,000
	Healthy Routine(+)	1,000,000	1,000,000	1,200,000	1,700,000	3,350,000	5,100,000	27,000,000
	Keep Informed About Advi..	1,000,000	1,000,000	1,700,000	1,950,000	3,100,000	5,100,000	9,800,000
	Medication for Underlyin..	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
	Newsfeed that Causes An..	1,000,000	1,000,000	1,350,000	1,750,000	2,150,000	3,000,000	24,000,000
	Social Contact by Telepho..	1,000,000	1,000,000	1,250,000	1,800,000	3,000,000	3,100,000	24,000,000

No data was available for "Social Contact" category of "COVID-19" videos, since 0 video belonged to it. Low whiskers and upper whiskers for "Entertainment," "Healthy Routine," and "Keep Informed" of "Quarantine" videos were the same, suggesting they had the same level of view count as vast majority of their data fell

within the same range. "Newsfeed" and "Social Contact" of "Quarantine" videos had shorter length of whiskers and shorter interquartile range compared to the former three categories, manifesting less variability and more consistency in number of views. For "COVID-19" videos, "Newsfeed" had the lowest median view count among all categories, which was an appropriate measure of central tendency for skewed distribution. This finding showed its lack of popularity contradictory to the prevalence of such content, while the unpopularity may even by partly attributed to the overabundance of such videos. A lesson for YouTubers would be to look at other directions beyond cases and numbers. Furthermore, within "COVID-19" videos, the minimum view count of "Healthy Routine" was the same as the low hinge of "Newsfeed", meaning all these "Healthy Routine" videos had more views than the bottom 25% of the "Newsfeed" videos, demonstrating at the lower end, videos that touched on well-being suited better to the need and taste of the audience. In contrast, maximum for "Medication" was lower than the medians of all other "COVID-19" videos except "Newsfeed," reflecting underlying conditions (mental health, drug use, alcohol, gambling) as concern of minorities. Viewers for this type of videos may chiefly be people who have or people who are related with those who have the conditions, and more "Medication" videos should be designed to attract those who don't have the conditions to be aware of the issues. Lastly, the highest upper whisker was that of "Keep Informed" among "COVID-19" videos, pointing out that people were in need of guidance and recommendations in this time of difficulty.

Conclusion

View counts followed a pattern of the majority views with a few extremely high views, probably associated with YouTube's further promotion of popular videos. By comparison between the two keywords, I have demonstrated that "COVID-19" videos focused more on fighting the virus, while "Quarantine" videos geared towards adapting to lifestyle changes. In general, "Quarantine" videos had greater variety than "COVID-19" videos. However, as a whole for videos covering this pandemic, more videos other than "Newsfeed that Causes Anxiety and Stress" should be produced, especially ones that provide suggestions about "Social Contact by Telephone and Online Channels" and "Medication for Underlying Conditions (Mental Health, Alcohol, Drug Use, Gambling)." "Newsfeed" being the only category detrimental to mental health, its percentage within "COVID-19" videos was overwhelming, and moderate within "Quarantine" videos. Additionally, "Newsfeed" videos were not as popular as other categories of "COVID-19" videos on average. Nevertheless, we should limit instead of completely abandon watching the news because a lot of informative advice also come along, and it's good to have knowledge of your circumstances than to feel blind or disoriented as well. Social media as the chief source of information during social distancing, achieving a balance by limiting newsfeeds and supplement other categories of videos to satisfy the mental health needs of viewers would be critical.

Discussion

There were a few limitations of my study. 1 million views might have been too high a standard for most videos. Besides, some videos may simply have been too new to have more views accumulated. Therefore, since the view counts were increasing at every moment, what I collected here could only reflect an approximated description of what had begun to get trending weeks before.

References

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