Going viral—an entertainment-education response to COVID-19: a parallel group, randomized controlled trial

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Abstract

Background: Entertainment-education (E-E) media can improve health knowledge and reach millions of people without requiring any physical contact. We have designed a short, wordless, animated video about preventative COVID-19 behaviours—such as social distancing and frequent hand washing—that can be rapidly distributed through social media channels to a global audience. The E-E video's effectiveness, however, remains unclear.

Methods: This multi-site, parallel group, randomized controlled trial compared the effectiveness of an E-E video on COVID-19 (CoVideo) against an attention placebo control (APC) video and no video (control). Using an online platform, we recruited participants aged 18–59 years from the United States, the United Kingdom, Germany, Spain, and Mexico. The main outcome measure was basic clinical knowledge about COVID-19 (clinical knowledge, 10 items) and knowledge of behaviours that prevent COVID-19 spread (knowledge spread, 8 items).

Findings: We recruited 15,163 online participants between 13 May 2020 and 23 June 2020. The final analysis included 14,482 participants randomly assigned to the control (4,908), APC (4,777), and CoVideo (4,797) arms. Knowledge in the control arm was high: participants correctly answered 91.9% of the clinical knowledge questions, 95.9% of the knowledge spread questions, and 93.7% of the combined (18) items. Combined knowledge was higher in the CoVideo arm, with greater clinical knowledge gains in older participants (45–59 years). Adjusting for demographic factors, knowledge scores were higher among women, more educated participants, and German speaking residents.

Interpretation: In a large, online randomized controlled trial, we found high levels of COVID-19 knowledge. Given these high baseline levels, the CoVideo was nevertheless effective at increasing basic clinical knowledge about COVID-19. Our results support the rapid and global distribution of E-E media on social media platforms to improve COVID-19 knowledge.

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Introduction

A large amount of published health information about the novel coronavirus (COVID-19) has been disseminated by the traditional mass media since the outbreak of the pandemic.[1–3] However, it is not clear if this information has improved knowledge of preventative COVID-19 behaviours. By preventative behaviours, we mean the public's adoption of practices such as social distancing, reduced physical contact, and hand sanitation (among others) that can prevent the spread of COVID-19.

Arguably, one possible limitation of mainstream mass media is that it has been perceived as politicized and culturally localized, thus limiting the persuasiveness of health messages about COVID-19.[4,5] It is also likely that traditional mass media channels (e.g., local or national television networks) have missed key segments of the population, such as young people (18–35 years) who are disproportionately more likely to transmit the virus to older people ($\geq$ 50 years).[6–8] An effective public health response could therefore benefit from entertainment-education (E-E) approaches that reach a wide age-range and focus on behaviours to prevent COVID-19 spread.[9,10]

To improve knowledge about preventative COVID-19 behaviours, we have designed a wordless, animated video (abbreviated to CoVideo) that can be rapidly distributed to a diverse and global audience through social media channels.[11] With a short duration (2.30 minutes), the CoVideo contains no speech and minimizes cultural signifiers to increase universality and appeal. The CoVideo was released on Stanford Medicine's YouTube channel on March 21, 2020, and accumulated a large number of views ('went viral') within 24 hours. After ten days, it had reached 332,000 views on YouTube, 220,000 views on Instagram, 294,000 views on Facebook, and 402,000 views on Twitter, with a cumulative count of 1.2 million views.[11] However, the CoVideo's effectiveness to improve knowledge about COVID-19 prevention remains unclear.

Using a randomized controlled trial, we compared the effectiveness of the CoVideo against an attention placebo control (APC) video and no video (control) among online participants from the United States, the United Kingdom, Germany, Spain, and Mexico. We measured effectiveness as the difference in mean knowledge about the clinical aspects of COVID-19 and mean knowledge about behaviours that prevent COVID-19 spread. The study results will inform the design of future E-E videos to disseminate evidence-based health recommendations related to COVID-19 as well as other public health emergencies.

Methods

Study design and participants

This was a multi-site, parallel group, randomized controlled trial comparing the effectiveness of the CoVideo (the intervention arm) against an APC video (the placebo arm) and no video (the control arm).[12] Each trial arm consisted of a video intervention (the CoVideo, APC video, or no video) and survey questions about COVID-19 knowledge. We used an online platform called Prolific Academic (`https://www.prolific.co`) to recruit participants, who selected to enter the study on a "first come, first served" basis. Participants had to be between the ages of 18 and 59 years (male, female, or other) and have current residence in the United States, the United Kingdom, Germany, Spain, or Mexico. Participants were excluded from the study if they could not speak English, German, or Spanish. The trial was hosted and deployed on Gorilla™ (`www.gorilla.sc`), which is a cloud platform that provides versatile tools to undertake online, experimental, and behavioural research.[13] The study and its outcomes were registered at the German Clinical Trials Register (www.drks.de) on May 12th, 2020: #DRKS00021582. Ethical approval was obtained from the Stanford University IRB on April 12, 2020, #55820.

Randomization and masking

Randomization was at a 1:1:1 ratio for the three arms of the trial. Because Prolific Academic handled the interaction between the study investigators and participants, the participants were completely anonymous to the study investigators. Participants self-responded to the survey questions and self-submitted their responses anonymously on the Gorilla platform. The study investigators and those involved in the data analyses were blinded to the group (CoVideo, APC, control) allocation.

Procedures

Participants began the online study on the Gorilla platform by answering basic demographic questions about their age, sex, primary language, country of residence, and highest education completed.

The Gorilla randomization algorithm then randomized participants to the intervention, placebo, or control arms. The intervention arm participants received the CoVideo, which is a wordless, animated video about how the novel coronavirus is spread (airborne, physical contact), and recommends best practices to prevent or reduce the spread of COVID-19 (staying at home, not congregating in public spaces, and sanitizing hands/surfaces). The CoVideo also covers the mass media coverage of the outbreak and the public's response to this coverage, which includes a subplot on the stockpiling of essential goods and the impact thereof on health-care services and resources (e.g., doctors being unable to access protective equipment). The CoVideo, which can be viewed at `https://www.youtube.com/watch?v=rAj38E7vrS8`, was designed for universal reach and optimized for release on social media channels.

Participants in the placebo arm received the APC. The APC is a wordless, animated video that has the same duration as the CoVideo. Its message is about how small choices become actions, which become habits, which become a way of life (`https://www.youtube.com/watch?v=_HEnohs6yYw`). We included an APC to account for possible attention effects elicited by the video medium. APC conditions should mimic the "inactive" components of an intervention—the effect of watching the video—while not containing any of the "active" intervention components—the message delivered by the video.[14] We did not make the assumption that the CoVideo is better than nothing (i.e., no video). It is possible that the CoVideo could motivate reactance to the message about preventing COVID-19 spread.[15–17] Participants in the control arm received no video.

Participants answered two types of COVID-19 knowledge questions. *Clinical knowledge* of COVID-19, with 10 items to evaluate basic knowledge of the clinical characteristics of COVID-19. *Knowledge spread*, with 8 items to evaluate the knowledge of behaviours to prevent COVID-19 spread. The 18 knowledge items are shown in Table S1. All items required True/False responses and all participants received the knowledge items. As a way to prevent online searchers for the answers, participants were given a count-down of 30 seconds to respond to each knowledge item

To ensure post-trial access to treatment,[18] participants in the APC and control arm received the CoVideo after completing the demographic and knowledge questions.

Outcomes

The primary outcome was the number of correct responses to the clinical knowledge questions, the knowledge spread questions, and the combined knowledge questions.

Statistical analysis

We obtained means and standard deviations of the participants' age, gender, primary language, country of residence, and education status. For each arm, we calculated the mean scores in clinical knowledge, knowledge spread, and combined knowledge. We defined the difference in mean scores between the CoVideo and control arms as the Total Effect, the difference in mean scores between the APC and control arms as the Attention Effect, and the difference in mean scores between the CoVideo and APC arms as the Treatment Effect. For participants in the CoVideo and control arms, we used a linear regression model to quantify the effects of the demographic characteristics on the clinical knowledge, knowledge spread, and combined knowledge scores. To measure CoVideo engagment, we counted the number of APC and control arm participants that chose to watch the CoVideo (participants could click "Watch the video" or "End the study") and for how long (participants were not renumerated for this additional time). Statistical analyses were performed with R software version 4.2.

Role of the funding source

The funder of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The corresponding author had full access to all the data in the study and had final responsibility for the decision to submit for publication.

Results

Between 13 May 2020 and 23 June 2020, we recruited 15,163 participants through the Prolific Academic platform. A total of 14,992 participants were randomly assigned to the control (5,081) APC (4,954), and CoVideo (4,940) arms (Figure 1). Between recruitment and randomization, 171 participants were lost. After randomization to each arm, another 173 (control), 177 (APC), and 143

(CoVideo) participants were lost due to technical reasons (e.g., lost internet connection, issues with linking to the video host, YouTube, server complications). A total of 14,482 participants completed the trial and contributed data to the final analysis.

The majority of participants reported their residence in the United Kingdom (58.8%) or the United States (26%), and 84.9% of participants reported English as their first language. The sample was relatively well-educated, with 81.6% having some college education or higher (BA, MA equivalent or PhD). Table 1 shows the percentage of participants in each arm by age, gender, country of residence, educational status, and primary language.

For the primary outcome, we report that the combined knowledge score was higher in the CoVideo arm compared with the control and APC arms (Figure 2). In the control arm, 16.86 out of the combined knowledge 18 items (93.69%) were correctly answered. With this high baseline score, the CoVideo could therefore only increase knowledge by a maximum of 1.14 points. Relative to the control arm, the CoVideo increased the average response by 0.09 points ($p = 0.001$), which represents a $0.09/1.14 = 7.65$ percentage point increase in combined knowledge. The average score for the APC arm was 16.89, a correct response rate of 93.84%. When we removed the attention effect of the video medium, the CoVideo increased overall knowledge by 0.06 points ($p = 0.024$), which represents a $0.06/1.11 = 5.29$ percentage point increase.

Clinical knowledge was higher in the CoVideo arm relative to the control and APC arms (Figure 3). In the control arm, the average items correctly answered was 9.19 out of 10 (a correct response rate of 91.9%). With this high baseline score, the CoVideo could therefore only increase knowledge by a maximum of 0.81 points. Relative to the control arm, the CoVideo increased the average response by 0.10 points ($p < 0.001$), which represents a $0.10/0.81 = 12.4$ percentage point increase in clinical knowledge. The mean knowledge score for the APC arm was 9.24 points. When we removed the attention effect of the video medium, the CoVideo increased the average response by 0.05 ($p = 0.007$), which represents a $0.05/0.76 = 6.9$ percentage point increase in clinical knowledge. There was no difference in knowledge spread among the arms (Figure 4). In the control arm, the average items correctly answered was 7.67 out of 8, a high correct response rate of 95.9%.

For the clinical knowledge questions, more than 99.0% knew that the coronavirus could be infected by a healthy person even if they looked healthy; more than 98.9% knew that some people with COVID-19 infection may experience a cough; and more than 97.5% knew that you can catch COVID-19 by touching a contaminated surface and then touching your face (Table 2). The lowest correctly answered item (79.7%) was knowing that cleaning surfaces with soap and water is an effective way to kill the coronavirus. For the knowledge spread questions, more than 99.3% of participants knew that an effective way to prevent COVID-19 spread is to wash hands frequently with soap and water; and 99.0% of participants knew that an effective way to prevent COVID-19 spread is to avoid shaking hands with other people; and to avoid places that are crowded with people (like bars, restaurants or performances), respectively. On the lower end, 85.4% answered correctly that regularly rinsing your nose with salt water cannot prevent the spread of COVID-19 (Table 2).

Table S2 shows the regression results for the combined knowledge items in the CoVideo arm. Older participants (aged 45–59 years) had the highest knowledge scores. Women had higher knowledge scores than men and German speaking residents had the highest knowledge scores of the five countries, after controlling for the other factors. Results show that higher education was significantly associated with higher knowledge scores, with a clear dose response across the education levels. We observed similar associations for the clinical knowledge items (Table S3). For the knowledge spread questions, education was again significantly associated with the response, and the United States and United Kingdom had significantly lower knowledge scores when compared with Germany (Table S4). These results suggest that the differences in the combined knowledge scores are likely being driven by the clinical knowledge scores.

When compared with the control arm, the CoVideo increased clinical knowledge most in the 45–54 year age group (Mean Diff. = 0.14, p = 0.014) and 55-59 year age group (Mean Diff. = 0.19, p = 0.044). The third largest increase was in the 18–24 year age group (Mean Diff. = 0.13, p = 0.001). There was no statistically significant difference in knowledge spread among the control and CoVideo arms by age group (data not shown).

As post-access to treatment, participants in the APC and control arms ($n = 9,685$) were given the choice to watch the CoVideo. Of these participants, 9,090 were able to access the CoVideo without any technical issues (e.g., failure to be redirected to the YouTube site where the CoVideo was hosted, poor download connection, slow internet). From this number, 71.3% chose to watch the CoVideo for an average length of 144 seconds, which represents 96% of the full duration (150 seconds). For those that chose to watch, 88.4% completed a full viewing of the CoVideo.

Discussion

There is a critical need for public health actors to disseminate scientific information about the treatment and prevention of COVID-19. To inform the public about the prevention of COVID-19 spread, we produced a short, animated video that went viral in the first week of its release on social media.[11] To evaluate the CoVideo's effectiveness, we recruited 15,163 participants to take part in a multi-site, parallel group, randomized controlled trial in an online setting. We asked participants questions about the basic clinical characteristics of COVID-19 (clinical knowledge) and questions about behaviours to prevent the spread of COVID-19 (knowledge spread). Our primary aim was to assess if the CoVideo was effective in improving knowledge about behaviours that can prevent COVID-19 spread.

We report that participants in our study had high levels of COVID-19 knowledge. For example, 99.0% of participants in the control arm knew that the coronavirus could be infected by a person even if they looked healthy, 98.9% knew that some people with COVID-19 infection may experience a cough, and 97.5% knew that you can catch COVID-19 by touching a contaminated surface and then touching your face. Overall, participants in the control arm correctly answered 91.9% of the clinical knowledge questions, 95.9% of the knowledge spread questions, and 93.7% of the combined questions. Given such high baseline levels, the CoVideo was nevertheless effective at increasing basic knowledge of the clinical characteristics of COVID-19: out of the remaining 8.1% needed to achieve a 100% correct response rate, the CoVideo increased clinical knowledge by a further 12.4%. After adjusting for attention effects, the increase in this clinical knowledge was 6.9%.

Results show that there was no difference in knowledge about behaviours to prevent COVID-19 spread. There are two likely explanations for this result. The first is that the baseline knowledge level in the control arm was very high (95.9%): possibly, the CoVideo could not further improve knowledge of behaviours to prevent COVID-spread. The second explanation is that it may be easier to improve knowledge about the clinical features of a disease (such as COVID-19) when compared to improving knowledge about health behaviours to prevent that disease. This second explanation has been discussed in the literature with respect to the use of knowledge to promote health behaviour change, which is often difficult to achieve in practice.[19] Where possible, additional analyses may be needed to determine which of the two explanations best fits the data.

Another possible explanation for the high knowledge scores is that our study sample was relatively well educated, with 81.6% having some college education or higher (BA, MA equivalent or PhD). It is possible that our study sample may be more highly educated than the general population of 18 to 59 years olds in the United States, the United Kingdom, Germany, Spain, and Mexico. However, a recent cross-sectional, online study on the knowledge and perceptions of COVID-19 in the United States and Great Briton shows a similar educational status composition (Primary school or less = 7%; High School completed = 17%, BA, some college = 58.5%, MA or PhD = 17.5%).[20]

We report that the COVID-19 knowledge scores differed by several factors. In the control and CoVideo arms, participants with higher educational status had higher COVID-19 knowledge scores, and women scored higher than men. Of the five countries, Germany had the highest knowledge scores after adjusting for age, gender, and education level. Because of its short, animated format designed for social media release, we expected the CoVideo to increase knowledge most in the younger age group (18–24 years). Surprisingly, the CoVideo increased knowledge most in the older age groups (45-54 and 54-59 years), even after removing the attention effects of the video format. Given these findings, online E-E videos about health could be an important means to target older populations who are often more vulnerable to health issues, as is the case with the COVID-19 pandemic.[21,22]

Our study has several strengths. We used state-of-the-art online technology to implement our randomized controlled trial.[12] The Prolific Academic platform enabled us to rapidly recruit a large number of participants who speak different languages and live in different countries in Europe, North America, and Latin America. We also hosted our study on the Gorilla platform, which facilitates the design, implementation, and management of online trials in behavioural research.[13] The Gorilla platform provides ready-made mechanisms for randomization to the trial arms, prevention of repeat or duplicate participants, bot checks, and questionnaire builders. Further, the Gorilla platform enabled us to implement design mechanisms such as count-downs (time limits) to prevent respondents from searching for online answers to the knowledge questions. Together, these tools enabled us to rapidly recruit a diverse sample of participants while ensuring the rigor of a completely randomized control design.

As an additional strength of this study, we were able to measure a component of participant engagement with the CoVideo. We offered participants in the APC and control arms the opportunity to watch the CoVideo to ensure post-access to treatment. The Gorilla platform then recorded whether participants' decided to click "End the study" or "Watch the video", and time spent watching the video was also logged. Our preliminary results show a relatively high engagement with the CoVideo: 71% of participants chose to watch; and 88.4% watched to the end. Interestingly, engagement was relatively high given that respondents already knew most of the COVID-19 facts featured in the CoVideo. It is plausible that the APC and control arm participants believed they could still benefit from watching the CoVideo and gain further information. To this extent, the CoVideo may have increased the participants' subjective probability that their current knowledge about COVID-19 was correct.

Our study results demonstrate the potential of E-E media, such as a short, animated video format that can be rapidly and comprehensively distributed to improve knowledge about an important public health topic. We expect that our study will make important contributions to the E-E literature. These lessons can improve the design of E-E videos to disseminate public health information for future pandemics. Our results will also guide future E-E strategies to support the long-term COVID-19 response as countries begin to ease lock-down restrictions.

Contributors

AV wrote the paper and undertook the statistical analysis. MA, MG, JG, and TB provided comments and feedback. MA designed, produced, and created the CoVideo. AV and TB designed the trial. AV, TB, MA, and MG contributed to the questionnaire development.

Declaration of interests

We declare no competing interests.

Acknowledgments

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Tables

Table 1: Shows the age, gender, country of residence, and education status, and primary language of participants by trial arm.

	Control		**APC**		**CoVideo**	
	N	**%**	**N**	**%**	**N**	**%**
Age						
18-24 years	1,363	27.8	1,289	27.0	1,323	27.6
25-34 years	1,779	36.2	1,746	36.6	1,732	36.1
35-44 years	977	19.9	940	19.7	949	19.8
45-54 years	580	11.8	576	12.1	579	12.1
55-59 years	209	4.3	226	4.7	214	4.5
Gender						
Female	2,614	53.3	2,622	54.9	2,616	54.5
Male	2,257	46.0	2,129	44.6	2,151	44.8
Other	37	0.8	26	0.5	30	0.6
Country of residence						
Germany	253	5.2	248	5.2	254	5.3
Mexico	235	4.8	236	4.9	231	4.8
Spain	250	5.1	246	5.1	245	5.1
UK	2,871	58.5	2,821	59.1	2,827	58.9
US	1,299	26.5	1,226	25.7	1,240	25.8
Education status						
Primary school	156	3.2	127	2.7	170	3.5
High school	737	15.0	743	15.6	737	15.4
BA, Some college	3,121	63.6	3,036	63.6	3,023	63.0
MA/PhD	894	18.2	871	18.2	867	18.1
First language						
German	252	5.1	246	5.1	252	5.3
English	4,171	85.0	4,048	84.7	4,069	84.8
Spanish (Mexico)	250	5.1	248	5.2	245	5.1
Spanish	235	4.8	235	4.9	231	4.8

Table 2: Correct response rates for clinical knowledge of COVID-19 and knowledge of behaviors to prevent COVID-19 spread by CoVideo, Attention Placebo Control (APC), and Control arms ($N = 14{,}482$).

	Control			**APC**			**CoVideo**		
	False	**True**	**%***	**False**	**True**	**%***	**False**	**True**	**%***
Clinical knowledge of COVID-19 spread									
1. The current coronavirus can be spread by an infected person even if they look healthy	49	4,859	99.0	37	4,740	99.2	22	4,775	99.5
2. The current coronavirus cannot be spread from person to person	4,654	254	94.8	4,534	243	94.9	4,591	206	95.7
3. The current coronavirus cannot survive on surfaces for more than a few minutes	4,219	689	86.0	4,046	731	84.7	4,173	624	87.0
4. Some people with COVID-19 infection may experience a cough	55	4,853	98.9	43	4,734	99.1	38	4,759	99.2
5. Some people with COVID-19 infection do not experience a fever	375	4,533	92.4	326	4,451	93.2	318	4,479	93.4
6. The current coronavirus spreads from person to person through small droplets from the mouth	259	4,649	94.7	212	4,565	95.6	255	4,542	94.7
7. The current coronavirus spreads from person to person through small droplets from the nose	644	4,264	86.9	598	4,179	87.5	617	4,180	87.1
8. You can catch COVID-19 by touching a contaminated surface and then touching your face	122	4,786	97.5	80	4,697	98.3	58	4,739	98.8
9. Antibiotics can be used to treat COVID-19 infection	4,370	538	89.0	4,332	445	90.7	4,343	454	90.5
10. Cleaning surfaces with soap and water is an effective way to kill the current coronavirus	996	3,912	79.7	932	3,845	80.5	817	3,980	83.0
Knowledge of preventing COVID-19 spread									
11. An effective way to prevent COVID-19 spread: wash your hands frequently with soap and water	35	4,873	99.3	28	4,749	99.4	31	4,766	99.4
12. An effective way to prevent COVID-19 spread: regularly rinse your nose with salt water	4,363	545	88.9	4,098	679	85.8	4,095	702	85.4
13. An effective way to prevent COVID-19 spread: avoid touching your face	42	4,866	99.1	39	4,738	99.2	32	4,765	99.3
14. An effective way to prevent COVID-19 spread: avoid shaking hands with other people	49	4,859	99.0	44	4,733	99.1	28	4,769	99.4
15. An effective way to prevent COVID-19 spread: avoid places that are crowded with people (like bars, restaurants or performances)	47	4,861	99.0	39	4,738	99.2	25	4,772	99.5
16. An effective way to prevent COVID-19 spread: eat garlic with each meal	4,694	214	95.6	4,563	214	95.5	4,590	207	95.7
17. An effective way to prevent COVID-19 spread: avoid sharing eating utensils with others	207	4,701	95.8	191	4,586	96.0	148	4,649	96.9
18. An effective way to prevent COVID-19 spread: wear a face mask even if you don't have COVID-19 symptoms	457	4,451	90.7	412	4,365	91.4	452	4,345	90.6

* Represents the percentage of items correctly answered.

Figures

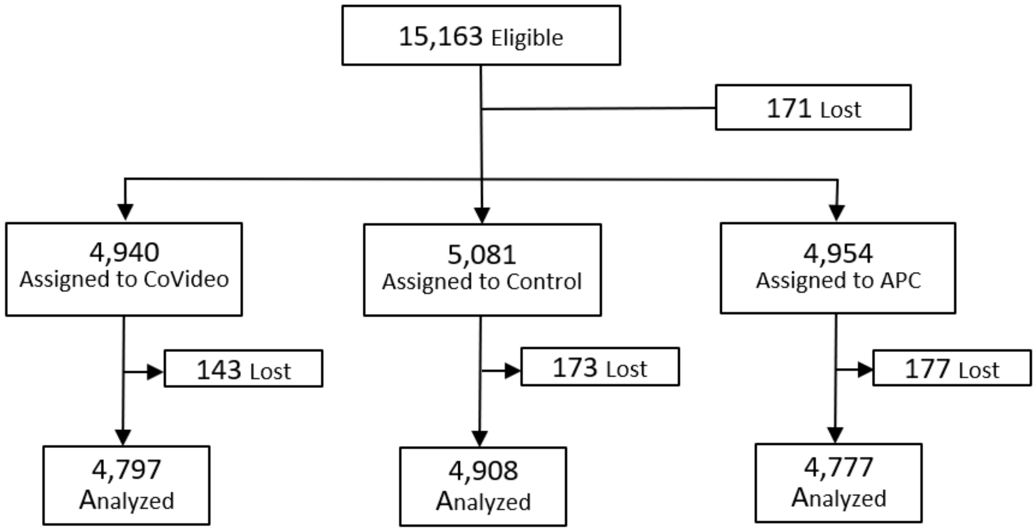

Figure 1: Trial design.

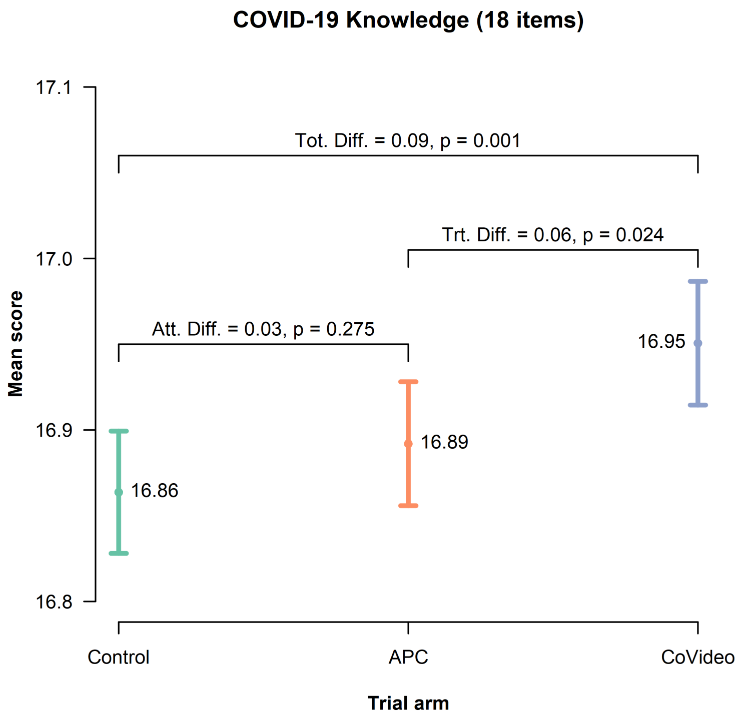

Figure 2: Mean score for the combined COVID-19 knowledge questions (18 items) by trial arm. Mean differences between the CoVideo, Attention Placebo Control (APC), and Control (no video) are reported with p-values (N =14,482). Tot. Diff. represents the total difference in means between the CoVideo and the Control; Att. Diff. represents the attention difference in means between the APC and Control; and Trt. Diff. represents the treatment difference in means between the CoVideo and the APC.

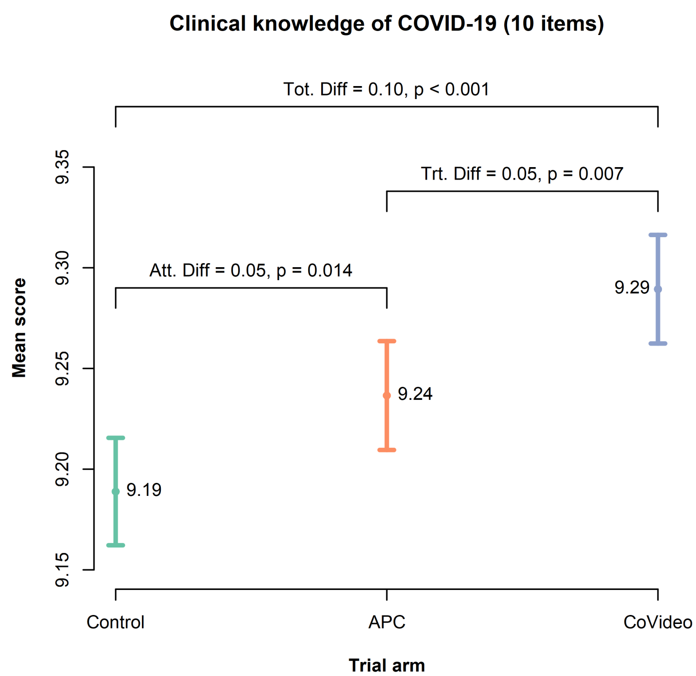

Figure 3: Mean scores for the clinical knowledge of COVID-19 questions (10 items) by trial arm. Mean differences between the CoVideo, Attention Placebo Control (APC), and Control (no video) are reported with p-values (N =14,482). Tot. Diff. represents the total difference in means between the CoVideo and the Control; Att. Diff. represents the attention difference in means between the APC and Control; and Trt. Diff. represents the treatment difference in means between the CoVideo and the APC.

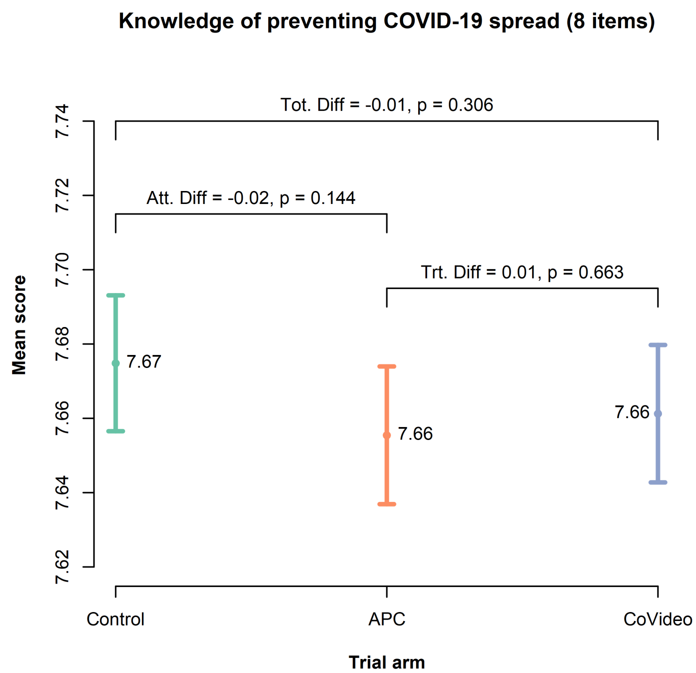

Figure 4: Mean score for the knowledge spread of COVID-19 questions (8 items). Mean differences between the CoVideo, Attention Placebo Control (APC), and Control (no video) are reported with p-values (N =14,482). Tot. Diff. represents the total difference in means between the CoVideo and the Control; Att. Diff. represents the attention difference in means between the APC and Control; and Trt. Diff. represents the treatment difference in means between the CoVideo and the APC.

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Supplementary Tables

Table S1: Shows the items for basic clinical knowledge of COVID-19 spread and the knowledge of behaviors to prevent the spread of COVID-19. All responses required True/False responses.

Clinical knowledge of COVID-19 spread
The current coronavirus can be spread by an infected person even if they look healthy
The current coronavirus cannot be spread from person to person
The current coronavirus cannot survive on surfaces for more than a few minutes
Some people with COVID-19 infection may experience a cough
Some people with COVID-19 infection do not experience a fever
The current coronavirus spreads from person to person through small droplets from the mouth
The current coronavirus spreads from person to person through small droplets from the nose
You can catch COVID-19 by touching a contaminated surface and then touching your face
Antibiotics can be used to treat COVID-19 infection
Cleaning surfaces with soap and water is an effective way to kill the current coronavirus
Knowledge of preventing COVID-19 spread
An effective way to prevent COVID-19 spread: wash your hands frequently with soap and water
An effective way to prevent COVID-19 spread: regularly rinse your nose with salt water
An effective way to prevent COVID-19 spread: avoid touching your face
An effective way to prevent COVID-19 spread: avoid shaking hands with other people
An effective way to prevent COVID-19 spread: avoid places that are crowded with people (like bars, restaurants or performances)
An effective way to prevent COVID-19 spread: eat garlic with each meal
An effective way to prevent COVID-19 spread: avoid sharing eating utensils with others
An effective way to prevent COVID-19 spread: wear a face mask even if you don't have COVID-19 symptoms

Table S2: Regression estimates of combined COVID-19 knowledge (18 items) in the CoVideo arm ($N = 4,797$).

	Estimate	SE	t-value	p-value
(Intercept)	16.71	0.10	161.93	<0.001
Age: 25-34 years	0.07	0.04	1.47	0.141
Age: 35-44 years	0.04	0.05	0.87	0.383
Age: 45-54 years	0.16	0.06	2.74	0.006
Age: 55-59 years	0.21	0.09	2.40	0.016
Gender: Male	-0.10	0.03	-2.95	0.003
Gender: Other	0.16	0.22	0.75	0.453
Residence: Mexico	-0.29	0.11	-2.58	0.010
Residence: Spain	-0.29	0.11	-2.58	0.010
Residence: United Kingdom	-0.27	0.09	-3.22	0.001
Residence: United States	-0.37	0.09	-4.19	<0.001
Education: Completed High School	0.48	0.11	4.42	<0.001
Education: Some College, BA	0.52	0.10	5.14	<0.001
Education: MA, PhD	0.62	0.11	5.65	<0.001

Table S3: Regression estimates of basic clinica knowledge of COVID-19 (10 items) in the CoVideo arm ($N = 4,797$).

	Estimate	SE	t-value	p-value
(Intercept)	9.10	0.08	116.47	<0.001
Age: 25-34 years	0.05	0.03	1.57	0.115
Age: 35-44 years	0.09	0.04	2.24	0.025
Age: 45-54 years	0.21	0.05	4.69	<0.001
Age: 55-59 years	0.21	0.07	3.13	0.002
Gender: Male	-0.06	0.03	-2.20	0.028
Gender: Other	-0.02	0.16	-0.10	0.917
Residence: Mexico	-0.34	0.08	-4.05	<0.001
Residence: Spain	-0.19	0.08	-2.31	0.021
Residence: United Kingdom	-0.15	0.06	-2.36	0.019
Residence: United States	-0.24	0.07	-3.56	<0.001
Education: Completed High School	0.27	0.08	3.36	<0.001
Education: Some College, BA	0.32	0.08	4.13	<0.001
Education: MA, PhD	0.43	0.08	5.24	<0.001

Table S4: Regression estimates of knowledge spread of COVID-19 (8 items) in the CoVideo arm ($N = 4,797$).

	Estimate	SE	t-value	p-value
(Intercept)	7.60	0.06	136.72	<0.001
Age: 25-34 years	0.01	0.02	0.52	0.604
Age: 35-44 years	-0.04	0.03	-1.53	0.126
Age: 45-54 years	-0.05	0.03	-1.51	0.132
Age: 55-59 years	0.00	0.05	0.06	0.954
Gender: Male	-0.04	0.02	-2.38	0.017
Gender: Other	0.18	0.12	1.54	0.124
Residence: Mexico	0.05	0.06	0.90	0.367
Residence: Spain	-0.09	0.06	-1.55	0.121
Residence: United Kingdom	-0.12	0.05	-2.65	0.008
Residence: United States	-0.13	0.05	-2.76	0.006
Education: Completed High School	0.20	0.06	3.49	<0.001
Education: Some College, BA	0.21	0.06	3.73	<0.001
Education: MA, PhD	0.18	0.06	3.12	0.002