



Comparing lengths and inclusion of information in storytelling videos: Implications for Hepatitis B education



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ABSTRACT

Objectives: This study examined whether adding disease-specific facts into storytelling videos and altering video length would lead to differences in overall ratings of the video and the storyteller, as well as hepatitis B prevention beliefs, among Asian American and Pacific Islander adults.

Methods: A sample of Asian American and Pacific Islander adults ($N = 409$) completed an online survey. Each participant was randomly assigned to 1 of 4 conditions that varied in video length and use of additional hepatitis B facts. Linear regressions were used to examine differences in outcomes (i.e., video rating, speaker rating, perceived effectiveness, hepatitis B prevention beliefs) by conditions.

Results: Condition 2, which added facts to the original full-length video, was significantly related to higher speaker ratings (i.e., the storyteller's rating) compared to Condition 1, the original full-length video with no added facts, $p = 0.016$. Condition 3, which added facts to the shortened video, was significantly related to lower overall video ratings (i.e., how much participants liked the videos overall) compared to Condition 1, $p = 0.001$. There were no significant differences in higher positive hepatitis B prevention beliefs across conditions.

Conclusions: Results suggest that adding disease-specific facts to storytelling for patient education may improve initial perceptions of storytelling videos; however, more research is needed to examine long-term effects.

Innovation: Aspects of storytelling videos such as length and additional information have been rarely explored in storytelling research. This study provides evidence that exploring these aspects is informative to future storytelling campaigns and disease-specific prevention.

1. Introduction

In 2016, as many as 2.4 million people in the United States (U.S.) were chronically infected with hepatitis B, a virus that can cause infection of the liver [1,2]. Hepatitis B can be prevented with vaccination [2]. For those who were not vaccinated at birth or are unaware of their status, screening can help diagnose infection and reduce risk of liver damage, liver cancer, and premature death [2]. Specific groups, such as Asian Americans and Pacific Islanders (AAPIs), are at higher risk for hepatitis B and hepatitis B-related complications [4].

AAPIs have higher rates of hepatitis B infection than any other race or ethnic group in the U.S. [5]. Although AAPIs only make up approximately 6.8% of the total population, they account for 58% of Americans living with chronic hepatitis B [5]. AAPIs face significant disparities in hepatitis B-related diseases (e.g., liver cancer) and are approximately eight times

more likely to die from hepatitis B-related complications than non-Hispanic whites [6]. Approximately 15% of AAPI immigrants and their children living in the U.S. are chronically infected with hepatitis B due to a greater prevalence of hepatitis B in Asia and the Pacific Islands [7]. Since hepatitis B infection is highest among AAPIs, it is crucial to work with these populations to improve awareness, testing, vaccination, and linkage to care.

Challenges, such as stigma and lack of awareness, may account for low screening rates [8,9]. Previous research has applied the health belief model (HBM) to understand predictors of AAPIs' intention to be screened for hepatitis B [10,11]. The HBM provides a variety of constructs that may help explain screening intentions, including perceived benefits (e.g., beliefs about the benefits such as preventing premature death), barriers (e.g., beliefs about barriers to screenings such as cost of screening test), susceptibility (e.g., beliefs about the chances of hepatitis B) and severity (e.g., beliefs

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about the consequences of hepatitis B such as increased risk of liver cancer) [12]. Research has indicated that a lack of awareness and knowledge of hepatitis B can negatively affect screening and medical management [13]. In addition to increasing specific knowledge and beliefs, other communication strategies, such as storytelling, may be beneficial in persuading individuals to be screened.

Storytelling allows people living with hepatitis B to share their personal experiences and connect with others who have similar lived experiences. Past research has suggested that storytelling can impact a variety of health-related beliefs and behaviors (e.g., HPV vaccination, smoking) [14]. Storytelling, the act of telling one's personal story to others, effectively connects with a specific audience in an emotional way [15]. It may also lead to higher positive beliefs about hepatitis B screening. Evidence from a previous study found that hepatitis B-related storytelling could be beneficial in emotionally connecting with specific audiences; however, results indicated that informational videos were received as more credible than storytelling videos [15]. This previous research highlighted the need to examine whether the addition of facts or statistics to storytelling videos and altering the length of videos would have a greater impact on hepatitis B prevention beliefs [15]. Additionally, the research indicated that some participants found the videos to be long and monotonous, promoting the need to examine if the length of a storytelling video may impact how it is perceived [15]. Determining the right amount of information in a video is important to ensure that the audience is not overloaded with information but enough information to decrease chances of uncertainty about the information being provided [16]. Additionally, the length of a communication material may impact outcomes such as emotional reaction and engagement [17,18]. This previous research highlights the need to determine the most appropriate length of a video for promoting positive outcomes. Additionally, research suggests that the length of a video may also impact if the audience watches the entirety of a video [19].

The purpose of this study was to understand whether adding hepatitis B-specific factual information to storytelling videos and shortening video length would alter perceptions of the video overall and of the storyteller and be associated with differences in hepatitis B prevention beliefs among a sample of AAPI adults.

2. Materials and methods

Participants were recruited through Qualtrics Survey Panel, a company that recruits participants from across the U.S., to complete an online survey in July 2020. Participants completed one survey at one time period. To be eligible for the study, participants had to meet the following inclusion criteria: (1) currently reside in the U.S., (2) identify as Asian American or Pacific Islander, and (3) be 18 years or older. After completing demographic and health care-related items, each participant was randomly assigned to watch two videos, shown in random order, within one of the four conditions: 1) original full-length storytelling video with no additional facts, 2) full-length storytelling video with additional facts, 3) shortened

storytelling video with additional facts, or 4) shortened storytelling video without additional facts. Each participant was shown a variation of the same two storytelling videos. In the first video, the speaker described how they were exposed to hepatitis B at birth and did not grow up understanding the potentially severe effects of the disease. As an adult, a doctor informed them of liver damage which prompted them to change their lifestyle and promote awareness of hepatitis B. In the second video, an individual learned as a teenager that they had hepatitis B and how they first struggled with the diagnosis, but with the support of their family and friends were able to take necessary steps to reduce their chances of severe complications and death. Both storytellers consented to providing and sharing their stories publicly and identified as Asian American. The duration and differences among the conditions are described in Table 1.

After watching each video, participants rated the individual video and speaker (i.e., the storyteller). Additionally, participants were asked to provide qualitative comments about each video. Participants then completed items on hepatitis B prevention beliefs. Quality assurance measures were included to ensure that quality responses were provided for both the close- and open-ended items. This included attention check questions (e.g., This is an attention check question. Select “Agree.”). All qualitative responses were individually checked by the lead researcher and a research assistant to determine if a quality written response was provided. If a participant did not provide a quality response, the participant was removed from the dataset. For example, if a qualitative comment did not make sense (e.g., typing “adadafafe”) or was completely unrelated to the prompt, all of their responses were removed. The survey was pilot tested before being fully launched to check for any issues with the measurements. Approval from the primary researcher's university institutional review board was received before data collection. Informed consent was obtained from all participants in the study.

2.1. Demographic and health care measures

During the survey, participants were asked to respond to demographic items, including age, sex, place of birth, primary language, marital status, sexual orientation, parental status, income, and education level, which were adapted from previous sources [20,21]. Given the timing of the survey, participants also responded to items regarding the COVID-19 virus, such as “How much difficulty do you have maintaining your health because of the coronavirus (or COVID-19) pandemic or social distancing rules?” [22]. Health care items were also measured, including usual source of care, previous diagnosis of hepatitis B, doctor recommendation of a hepatitis B screening, previous hepatitis B testing, vaccination, and having a blood relative history of hepatitis B or liver cancer [20,23,24].

2.2. Hepatitis B prevention belief measure

Hepatitis B prevention beliefs, based on the HBM, were adapted from prior studies [10,24,25,26]. These belief items were assessed using Likert

Table 1
Video conditions descriptions.

Condition Name	Condition Number	Condition Length (including both videos)	Description of Video Type	Health Belief Model Construct
Full video with no additional facts	1	4 min and 56 s	Full video without additional information regarding hepatitis B.	Perceived benefits, perceived susceptibility, perceived severity
Full video with additional facts	2	6 min and 37 s	Full video with additional information regarding hepatitis B such as how many people are living with the virus and how it can lead to more health conditions if left undiagnosed and unmanaged.	Perceived benefits, perceived susceptibility, perceived severity
Shortened video with additional facts	3	2 min and 2 s	Shortened video with additional information regarding hepatitis B such as how many people are living with the virus and how it can lead to more health conditions if left undiagnosed and unmanaged.	Perceived benefits Perceived susceptibility Perceived severity
Shortened video without additional facts	4	2 min and 25 min	Shortened video without additional information regarding hepatitis B	Perceived severity Perceived susceptibility

scale items (ranging from 1 = strongly disagree to 5 = strongly agree). There were four specific constructs. Perceived barriers (Cronbach's $\alpha = 0.831$) were measured using 8 items (e.g., "Testing is embarrassing"). Perceived benefits of testing (Cronbach's $\alpha = 0.464$) were measured using 4 items (e.g., "Testing for hepatitis B can effectively diagnose early issues or complications"). Perceived severity of hepatitis B (Cronbach's $\alpha = 0.789$) was evaluated using 4 items (e.g., "People who are infected with hepatitis B can be infected for life"). Perceived susceptibility (Cronbach's $\alpha = 0.661$) to hepatitis B was assessed using 5 items (e.g., "I often worry about getting liver cancer"). For analysis, the items from each construct were averaged to create a score (e.g., a perceived benefits score).

2.3. Video outcome measures

Speaker rating was measured on one scale by having participants rate the storyteller in the video on their perceived intelligence, likability, competency, level of knowledge, attractiveness, credibility, and expertise [27]. Perceived effectiveness was measured on one scale by asking participants to rate each video on whether it was convincing, compelling, persuasive, effective, said something to them, made them think about getting tested for hepatitis B, made them think about talking to a friend or family about getting tested, and/or made them think about their responsibility to protect and help their family [28,29]. Both the speaker rating and perceived effectiveness items were assessed using Likert scale items (ranging from 1 = strongly disagree to 5 = strongly agree). To obtain final scores for speaker rating and perceived effectiveness, the items were averaged within the scales for each video. An average score was then calculated across the videos in each condition. Cronbach's alpha was found to be above 0.70 for perceived effectiveness and speaker rating scales for each video [30].

Video rating was measured using one item that asked participants to indicate how much they liked or disliked the video on a 7-point Likert scale (1 = like a great deal to 7 = dislike a great deal). After watching each

video, participants were given the option to provide qualitative comments the video in a text box. The question provided was, "What thoughts did you have about this video? List up to four thoughts using the textbox below."

2.4. Statistical analysis

IBM SPSS Statistics 27 was used to calculate frequency and central tendency statistics for participant characteristics (e.g., age, sex, education) by video condition. Linear regressions were used to analyze the effects of adding facts and altering video length compared with the original video on the dependent variables (i.e., video rating, speaker rating, perceived effectiveness, hepatitis B prevention beliefs) while controlling for demographic and health-related factors (see Table 2). Pairwise deletion was used to handle missing data.

2.5. Qualitative analysis

Thematic analysis was used to analyze participants' comments using QSR International's NVivo 12, a qualitative data analysis software. Video comments were first open coded by trained research assistants. The open codes were then combined into simplified codes and defined. Pilot testing of a sub-sample of the video comments was conducted until an acceptable inter-coder reliability was established (i.e., a Kappa value of at least 0.70 or above). After inter-coder reliability was established, the video comments were coded using the final codes. Finally, the codes were grouped into five encompassing themes. After conducting the thematic analysis, count data was examined to determine the frequency of the different codes and themes to better understand their representation in the dataset.

3. Results

Table 2 outlines the demographics and health-related characteristics of the sample by condition. Participants (N = 409) were on average

Table 2 Demographics of the study sample.

Characteristic	(N = 409)	Condition 1: full video without Text	Condition 2: full video with text	Condition 3: shortened video with text	Condition 4: Shortened without text
Age (years)					
Mean \pm SD	40.18 \pm 17.83	40.28 \pm 17.76	40.13 \pm 18.63	37.94 \pm 16.91	42.80 \pm 17.89
n (%)					
Sex					
Male	203(49.4)	53 (50.0)	59 (53.2)	60 (57.7)	35 (39.8)
Female	206(50.4)	53 (50.0)	52 (46.8)	44 (42.3)	53 (60.2)
Place of Birth					
United States	203(49.6)	48(45.3)	57(51.4)	56(53.8)	42(47.7)
Other	206(50.4)	58(54.7)	54(48.6)	48(46.2)	46(52.3)
Education					
High school diploma/G.E.D or below (0)	66(16.1)	22(20.8)	20(18.0)	17(16.3)	7(8.0)
Some college or above (other)	343(83.9)	84(79.2)	91(82.0)	87(83.7)	81(92.0)
Income					
Not enough to make ends meet/just enough to make ends meet	150(36.7)	41(38.7)	40(36.0)	36(34.6)	33(37.5)
Some money left over	259(63.3)	65(61.3)	71(64.0)	68(65.4)	55(62.5)
Married or Living with a Partner					
Married	215(52.6)	52(49.1)	63(56.8)	50(48.1)	50(56.8)
Other	194(47.4)	54(50.9)	48(43.2)	54(51.9)	38(43.2)
Usual Care					
Doctor's Office or HMO	60(14.7)	18(17.0)	16(14.4)	13(12.5)	13(14.8)
Other	349(85.3)	88(83.0)	95(85.6)	91(87.5)	75(85.2)
Relative Hepatitis B					
Yes	27(6.6)	5(4.7)	14(12.6)	7(6.7)	1(1.1)
No/Unsure	382(93.4)	101(95.3)	97(87.4)	97(93.3)	87(98.9)
Relative HCC					
Yes	27(6.6)	3(2.8)	11(9.9)	10(9.6)	3(3.4)
No/Unsure	382(93.4)	103(97.2)	100(90.1)	94(90.4)	85(96.6)
Doctor Told Hepatitis B					
Yes	18(4.4)	1(0.9)	11(9.9)	2(1.9)	4(4.5)
No	391(95.6)	105(99.1)	100(90.1)	102(98.1)	84(95.5)

40.18 (SD = 17.83) years old. Approximately half of the participants were born in the U.S. ($n = 203, 49.60\%$) and were female ($n = 206, 50.40\%$). Most had at least some college or more ($n = 343, 83.90\%$). Less than half have been vaccinated against hepatitis B ($n = 156, 38.10\%$). A small percentage of participants had a family history of hepatitis B (6.6%) and/or had been told by a doctor that they had hepatitis B (6.6%).

When comparing the four conditions, Condition 2 (full storytelling video with added facts) was associated with better speaker ratings (i.e., the storyteller in the video was rated higher) when compared to Condition 1 (full storytelling video without added facts), $F(15, 390) = 1.981, p = 0.016, R^2 = 0.071$. Condition 3 (shortened storytelling video with added facts) was associated with lower video ratings (i.e., how much the participant liked the video overall) when compared to Condition 1 (full storytelling video without added facts), $F(15, 390) = 2.585, p = 0.001, R^2 = 0.090$. There were no observed differences among conditions in health prevention beliefs (e.g., perceived susceptibility, perceived severity, perceived benefits, and perceived barriers among the conditions. Full regression results can be found in Table 3.

Results from the thematic analysis of video comments revealed five overarching themes: (1) personal benefit, (2) positive video feedback,

(3) negative video feedback, (4) emotion, and (5) health information. These themes and their corresponding codes and definitions are outlined in Table 4.

Overall, participants referenced the theme of personal benefit more in Condition 3 ($n = 40$) than in Condition 1 ($n = 33$), Condition 2 ($n = 30$) and Condition 4 ($n = 27$). The theme of personal benefit included participants stating that they felt more aware about hepatitis B or that they felt the video benefitted them in some way. For example, one participant commented that the video “raises an awareness” and has “made [them] think twice about [their] health condition.” Another participant stated, “I thought hepatitis B is not a big issue, but after watching it, I seriously consider spreading awareness.” Some participants also felt accepted after watching the video, which was mentioned only in Condition 4 ($n = 2$). Appreciation was referenced most in Condition 3 ($n = 25$), while feelings of motivation were similarly mentioned across all four conditions. One participant stated that the video made them “think about getting tested” and that the video “told [them] something about the disease that [they] never knew,” while another participant stated how “real life stories are more motivating and inspiring” and believed that the “message [from] his video is loud and clear” and stated, “please go get tested for hep B.”

Table 3
Regression analyses.

Independent Variables	Dependent variables	Perceived Susceptibility	Perceived Severity	Perceived Benefits	Perceived Barriers	Video Ratings	Speaker Rating	Perceived Effectiveness
Condition 2: Full video with information (Referent: Condition 1)	β		0.029	0.114		-0.054 0.013	0.088	0.132 0.115
	SE		0.083	0.084		0.076 0.083	0.075	0.089 0.093
	p		0.629	0.062		0.379 0.823	0.145	0.032 0.058
Condition 3: Shortened video with information (Referent: Condition 1)	β		0.001	0.045		-0.040 -0.039	-0.212	-0.049 0.015
	SE		0.084	0.085		0.076 0.083	0.075	0.090 0.094
	p		0.993	0.450		0.379 0.486	<0.001	0.416 0.807
Condition 4: Shortened video without information (Referent: Condition 1)	β		0.067	-0.021		-0.042 0.024	-0.027	-0.038 0.012
	SE		0.088	0.089		0.081 0.087	0.079	0.094 0.099
	p		0.245	0.728		0.481 0.670	0.642	0.521 0.836
Frequency of doctor visits since COVID (Referent: Same or more)	β		-0.076	-0.080		0.101 0.027	-0.047	-0.022 -0.040
	SE		0.064	0.065		0.058 0.063	0.057	0.068 0.072
	p		0.131	0.122		0.050 0.567	0.354	0.667 0.443
Age	β		0.094	0.132		-0.054 -0.187	0.101	0.092 0.024
	SE		0.002	0.002		0.002 0.002	0.002	0.002 0.002
	p		0.122	0.034		0.384 0.001	0.103	0.142 0.696
Sex (Referent: Male)	β		0.029	0.003		0.004 0.009	0.071	0.046 0.070
	SE		0.062	0.062		0.056 0.061	0.055	0.066 0.069
	p		0.554	0.959		0.930 0.841	0.160	0.370 0.165
Married or living with partner	β		0.063	-0.007		0.080 -0.006	0.013	-0.010 0.058
	SE		0.068	0.069		0.062 0.067	0.061	0.072 0.076
	p		0.246	0.896		0.151 0.907	0.817	0.860 0.295
Education (Referent: High school or below)	β		-0.024	0.037		-0.100 -0.125	-0.019	0.059 0.013
	SE		0.089	0.090		0.081 0.088	0.079	0.095 0.099
	p		0.646	0.479		0.060 0.011	0.725	0.264 0.809
Received Hepatitis B vaccine (Yes)	β		-0.010	0.098		-0.133 -0.200	0.099	0.117 0.123
	SE		0.065	0.006		0.059 0.064	0.058	0.069 0.073
	p		0.848	0.056		0.010 0.000	0.053	0.024 0.017
Doctor Recommendation (Yes)	β		0.106	0.050		-0.115 -0.096	0.005	-0.012 0.028
	SE		0.087	0.088		0.079 0.086	0.078	0.092 0.097
	p		0.034	0.327		0.025 0.043	0.914	0.814 0.587
Relatives diagnosed with HCC (Yes)	β		0.180	0.007		-0.043 0.063	0.083	0.107 0.134
	SE		0.133	0.135		0.121 0.132	0.120	0.142 0.150
	p		0.001	0.900		0.434 0.215	0.126	0.052 0.014
Relatives diagnosed with Hepatitis B (Yes)	β		0.073	0.033		-0.045 -0.077	-0.017	-0.037 -0.054
	SE		0.131	0.133		0.119 0.130	0.118	0.140 0.147
	p		0.165	0.538		0.400 0.120	0.744	0.488 0.315
Usual place of preventative care (Yes)	β		-0.046	0.122		-0.047 0.018	-0.046	0.037 -0.012
	SE		0.087	0.088		0.079 0.086	0.078	0.093 0.097
	p		0.342	0.015		0.344 0.703	0.351	0.457 0.807
Born in United States	β		0.029	0.074		0.007 0.023	0.029	-0.004 -0.060
	SE		0.064	0.065		0.058 0.063	0.057	0.068 0.072
	p		0.575	0.157		0.898 0.631	0.574	0.934 0.254
Difficulties of COVID: averaged score	β		0.180	0.110		-0.023 0.252	0.024	0.070 0.113
	SE		0.037	0.037		0.034 0.037	0.033	0.040 0.042
	p		0.000	0.036		0.667 0.000	0.648	0.185 0.032

Table 4
Themes and codes from qualitative comments on videos.

Theme	Theme Definition	Codes	Representative Quote
Emotion	Individual described experiencing a positive or negative emotional response after watching the video. Individual may have stated they felt happy, sad, scared, angry, worried, or hopeful. They may have also mentioned feeling accepted, appreciative, or motivated.	Emotion	"This video is very emotional. His mention about his problems had me in tears throughout the video. I was happy to read in the middle of the video that he recovered."
Health Information	Individual mentioned a fact, statistic, or general hepatitis B information that was presented in the video. They may have mentioned preventative practices, health behaviors, or health effects. They may have also emphasized the severity or urgency of hepatitis B after watching the video or described the importance of parents' roles in hepatitis B awareness and disclosure.	Family, Health Behavior, Health Effect, hepatitis B, Prevention, Severe, Statistics/Facts, Urgency	"I thought that the video was serious in its tone, which helped establish the severity of Hepatitis B and how even though it is a 'silent' disease, it can greatly affect one's life. It showed me that although being a victim of it is tough, you can still lead a happy and fulfilling life. All in all, it was an effective video that is sure to teach its audience."
Personal Benefit	Individual mentioned that they gained something from watching the video. They may have stated they felt the video provided some kind of benefit to their life or that they felt more aware. They may have also stated that they felt accepted, appreciative or motivated after watching the video.	Accepted, Appreciative, Aware, Motivating	"I am glad to have seen this video. It is a subject not many people talk about. It certainly drew awareness for me."
Positive Video Feedback	Individual mentioned a specific aspect of the video that they liked or thought was effective in communicating health information. They may have described the video as convincing, easy to understand, or engaging. They may have mentioned that the video was educational, important, relatable, or preferred one video over the other.	Convincing, Easy to Understand, Educational, Engaging, Important, Relatable, Video Comparison	"The format made the video easy to follow, and it was engaging because the narrator had personal experience with the issue"
Negative Video Feedback	Individual mentioned a specific aspect of the video that they disliked or can be improved upon. They may have mentioned issues related to the audio, speed or quality of the video, or described the video difficult to understand.	Hard to Understand, More Information, Video Issues	"The music was nice to hear, but the voice of the narrator felt a little muddled at time and wasn't very engaging and I couldn't understand what he was saying a few times. I feel like the narration was rushed, and I was a little confused as to where everything was going. I feel like there weren't enough critical details for me, but could get the gist of it. Overall, it could have been more engaging with a more confident voice, and a little better narration/script."

The second theme, positive video feedback, highlighted specific aspects of the video that participants liked or thought was effective in regards to communicating health information. Overall, participants referenced positive video feedback the most in Condition 3 ($n = 108$), followed by Condition 2 ($n = 99$) and Condition 1 ($n = 87$). Fewer participants referenced positive video feedback in Condition 4 ($n = 69$) compared to other conditions. Some participants described the videos as convincing, easy to understand, or engaging. For example, one participant stated, "the format made the video easy to follow, and it was engaging because the narrator had personal experience with the issue." Another participant stated that the video was "informative, engaging, interesting [and] believable." Few participants found Condition 4 convincing ($n = 18$) or engaging ($n = 16$) compared to the other three conditions.

The third theme, negative video feedback, illustrated specific aspects of the videos that participants disliked or thought could be improved upon. Overall, participants referenced negative video feedback more in Condition 3 ($n = 44$) than in Condition 2 ($n = 30$). For example, one participant stated "it was a bit unprofessional looking" and that the video was "too long." Many participants also mentioned issues related to the videos' audio, speed, or quality. Participants in the study had the most issues with Condition 3 ($n = 30$) when compared to the other conditions. Some participants stated that the video was "too quiet and calm," the "audio was monotone," and that the "video was plain." Several participants also described the video as difficult to understand or needing more information. Some participants referenced that the video needed more information in Condition 1 ($n = 21$) and Condition 3 ($n = 21$) when compared to Condition 2 ($n = 13$) and Condition 4 ($n = 13$). For example, participants described the video as "confusing" with "incoherent messaging" and believed it was "poorly executed." Additionally, participants felt they "did not understand the full info about hepatitis B."

The fourth theme, emotion, describes a range of positive and negative emotional responses as a result of watching the videos. Overall, participants referenced emotion more in Condition 3 ($n = 38$) than in any other condition. Condition 2 ($n = 17$) had the least comments regarding emotion,

followed by Condition 4 ($n = 23$) and Condition 1 ($n = 31$). Participants may have mentioned feeling positive emotions such as acceptance, appreciation, happiness, hope, or motivation. For example, one participant stated that "I'm happy that he has such a positive outlook on life with his illness, and I feel proud of what he accomplished/wishes to accomplish," while another described the video as "uplifting, thoughtful, guiding, [and] helpful." Participants may have also described feeling negative emotions such as sadness, fear, or worry. One participant described feeling "afraid, confused, hopeless, [and] helpless" after watching the video, and another stated feeling "sad, afraid, worried, [and] anxious." Some participants reported a mixture of positive and negative emotional responses, stating, "This video is very emotional. His mention of his problems had me in tears throughout the video. I was happy to read in the middle of the video that he recovered."

The fifth theme, health information, refers to the mention of a fact, statistic, or general hepatitis B information that was presented in the video. Overall, participants referenced health information most in Condition 3 ($n = 82$), followed by Condition 1 ($n = 71$), then Condition 2 ($n = 61$) and lastly Condition 4 ($n = 53$). Participants mentioned preventative practices, health behaviors, or health effects, which occurred more in Condition 4 ($n = 8$), Condition 1 ($n = 32$), and Condition 3 ($n = 9$), respectively. One participant stated, "Hepatitis B can be avoided by vaccination and early detection," while another reported that they were "not aware hepatitis [B] could be transmitted prenatally." Another participant also mentioned, "Hepatitis B affects the liver and can cause liver damage." Participants also emphasized the severity or urgency of hepatitis B after watching the videos or described the importance of parents' roles in hepatitis B awareness and disclosure. References to urgency were mentioned most in Condition 1 ($n = 4$); however, severity was mentioned the same number of times across all four conditions ($n = 4$), with the exception of Condition 4 ($n = 0$). One participant stated, "I thought that the video was serious in its tone, which helped establish the severity of hepatitis B and how even though it is a 'silent' disease, it can greatly affect one's life." Another participant expressed that hepatitis B "doesn't have any symptom, when it come[s] to light it [is] already too late to treat, so it is better [to] test for hepatitis B

before it strike[s] any further.” Some participants emphasized the importance of family and hepatitis B disclosure, stating, “[name removed]’s mom should have told him about hepatitis B and prevented the transmission of [the] virus to her baby.” Participants referenced family more in Condition 2 ($n = 16$) than any other conditions.

4. Discussion and conclusion

4.1. Discussion

Overall, Condition 2 (full storytelling video with added information) received better speaker ratings than Condition 1 (full storytelling video without added information). This indicates that the storytellers within Condition 2 may have been perceived better when the additional information was added and the full length of the video was provided. Condition 3 (shortened storytelling video with added information) received the largest number of qualitative comments referencing negative feedback and received lower video ratings than Condition 1 (full storytelling video without added information). This may indicate that participants preferred the shortened video less. Condition 4 (shortened storytelling video without added information) received the fewest number of positive feedback qualitative comments. The full storytelling video with added information received the best combination of overall video ratings and speaker ratings, suggesting that the videos and storytellers in this condition were perceived the best across the conditions. While there were no significant differences in hepatitis B prevention beliefs among the different conditions, it is clear that added information in the full video affected the participants’ perceptions of the videos.

The study results indicated that the shortened storytelling video with added information had a lower video rating than the original video. This was also supported by qualitative comments in which this condition received the highest number of negative feedback comments among the conditions (e.g., video being boring). Given that one participant described that the text displayed too quickly in the videos, it is possible that the shorter video lengths may be correlated with a decrease in video likeability. However, it should be noted that this video condition did receive positive feedback as well, and it is possible that the video length was not reason for more negative feedback. Other factors, such as not including enough information or the right amount of information to make a compelling argument or the message not being clearly stated, could have led to more negative comments among the short videos. There is some previous evidence that suggests that video length may affect video outcomes [31,32]. For example, one meta-analysis study examining the effects of narratives on persuasion in health communication by measuring attitudes, intentions, and behaviors found that message length was significantly correlated to effect size [31]. The study found that longer narratives were more effective at persuading participants in health communication contexts [31].

Similarly, another study analyzing the effects of information about tininitus contained in different video sources on YouTube found that a longer duration of videos was slightly correlated with more thumbs-up (or likes) ratings [32]. However, it should be noted that higher ratings may not necessarily reflect the viewers’ attentiveness to the video itself. For example, in a study conducted in India on understanding the needs and lifestyles of Urban Sex Workers (USWs), they found that a much larger percentage (93.1%) of USWs listened to the entirety of a 19-s message, whereas only 59% of USWs listened to a longer 30-s message related to sexual health and finances [33]. Given that the current study did not assess the level of attention given to each video, it is possible that this factor could affect study outcomes.

Another important finding was related to the addition of factual information to the videos. While the shortened video with additional information was rated lower than the original video, the speaker (i.e., the storyteller) in the full-length video with additional information was rated higher. Some qualitative comments suggest why this video may have been rated higher. For example, some participants expressed that this video had a clearer message, was interesting and informative, and taught

many participants about importance of health. This video also had more participants mention the story itself (e.g., stating that the story was compelling or eye opening). These components may be in relation to the additional information provided in the full-length video with added information. The full-length videos may have also allowed more time for participants to comprehend the information, which may have affected participants’ reactions to the videos. A previous study found that adding additional information to positive body image videos resulted in higher beliefs about the importance of body dissatisfaction than videos with no additional information [34]. In a previous study that examined storytelling videos for hepatitis B prevention, researchers found that while many participants connected emotionally with the videos, participants expressed the need for more information related to what hepatitis B was and how to get screened [15].

Similarly, in the current study, participants gave more positive feedback in terms of person ratings and qualitative comments when additional information was added in the full-length storytelling videos. This condition also had the lowest number of comments related to emotion. However, this was not true for the condition that had shortened videos with additional information. It is possible that the combination of having a longer video and additional facts reduced the emotional responses. However, more research using quantitative measures of emotion would be needed to understand if there was a difference in emotional response across the participants.

More research is required to investigate the long-term effects of storytelling on participants’ beliefs and health behaviors and whether this increase in knowledge will, in turn, increase preventative practices. While the sample was taken across the U.S., it may not be generalizable to all AAPI adults in the U.S. The sample included more highly educated individuals and individuals who were middle-aged; however, it was almost equally split in terms of gender and foreign-born versus U.S.-born participants. In addition, the study used a cross-sectional design and provided two short videos for participants to watch. Since only two videos were included, longitudinal studies are needed to understand the impact of the different types of videos on actual hepatitis B—preventive behavior. Two videos may not have provided enough exposure to promote immediate changes in beliefs, and it is possible that long-term exposure to multiple videos/multiple times may have long-term effects (e.g., screening behaviors). Additionally, there were some variations in the constructs from the Health Belief Model that were addressed across the videos, which may have impacted the hepatitis B preventive belief scores. Finally, the Cronbach’s alpha level for two of the hepatitis B preventive belief scores was below the recommended value of 0.70 [30].

4.2. Innovation

Overall, this study adds to the current evidence on the use of storytelling for promoting health behaviors and provides preliminary research to inform future work. To the best of the authors’ knowledge, this is the first study to examine both length and inclusion of additional information in storytelling videos for hepatitis B storytelling. This study adds to the current storytelling literature by incorporating both qualitative and quantitative findings. The qualitative findings suggest a need to further explore if the higher number of negative comments on the shorter videos is related to a lower chance of certain health behaviors (e.g., hepatitis B screening) over time compared to longer videos. Further, it provides a justification to further examine what factors (e.g., perceived clarity) lead to more negative comments among the shorter videos. The quantitative findings suggests that there may be a difference in how the audience reacts to a speaker when more factors or information is added. However, it also highlights the need to further explore if adding more information to a video lead to actual behavior change. Taken altogether, this research provides evidence that using both a quantitative and qualitative approach provides insights beyond ratings which can be more informative towards future hepatitis B storytelling videos and educational campaigns. Further exploring both length and additional information will allow storytelling videos to be modified to effectively promote awareness about hepatitis B and the importance of preventative practices such as screening and vaccination.

4.3. Conclusion

Given evidence of storytelling in promoting hepatitis B awareness, this study went a step further to examine whether the addition of facts and video length would have a greater impact on hepatitis B beliefs. Findings from this study provide evidence that additional information to a longer, more comprehensive video affected participants' perceptions of the video overall. However, a shorter video with the same added information received low video ratings, even lower than a long video without added information. This suggests that video length may be important when developing patient education materials and provides justification for future research to examine the long-term impacts of different types of storytelling videos on beliefs and behaviors related to specific diseases.

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Declaration of Competing Interest

None.

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