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Efficacy of an HIV/AIDS and HIV testing video for Spanish-speaking Latinos in healthcare and non-healthcare settings

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Abstract

We assessed the efficacy of a Spanish-language HIV/AIDS and HIV testing video as a substitute for comparable orally-delivered information in healthcare and non-health care settings for Spanish-speakers regardless of health literacy level. In a non-inferiority clinical trial, Spanish-speaking Latinos from an emergency department, a clinic, and community-based organizations were randomly assigned to receive HIV/AIDS and HIV testing information orally or from a video. Comprehension of the information was measured using a questionnaire. Of the 150 participants, 39% met criteria for lower health literacy and 75% previously had been tested for HIV. Mean scores on the questionnaire for the video (20.4; 95% CI: 19.5~21.3) and the orally-delivered information arms (20.6; 95% CI: 19.7~21.5) were similar ($\Delta = -0.15$; 95% CI: -1.4~1.1). Mean scores among lower health literacy participants also were similar (18.3 (video) vs. 19.6 (in-person); $p < 0.30$). This Spanish-language video is a viable substitute for orally-delivered HIV/AIDS and HIV testing information.

Introduction

Although comprising 16% of the population (1), Latinos account for 19% of people in the United States (US) with HIV(2), 22% of new HIV infections, 20% of those with AIDS, and 20% of new AIDS cases. Moreover, many Latino immigrants engage in more risky behaviors after immigrating to the US, and nearly half of new HIV infections among Latinos are diagnosed among native Spanish-speakers not born in the US.(3, 4) Despite being disproportionately affected by HIV/AIDS, approximately 50% of 18-44-year-old US Latinos have never been tested for HIV.(5) As part of the Centers for Disease Control and Prevention's (CDC) National Plan of Action, leaders from the Latino community have recommended that researchers conduct studies to adapt prevention strategies for Latinos,

including creating HIV interventions for lower literacy, primarily Spanish-speaking Latinos. (6, 7)

In 2006(8), CDC reiterated that all HIV test recipients in healthcare settings should receive information about HIV/AIDS and HIV testing to improve their knowledge on this topic and prepare them for testing. HIV/AIDS and HIV test information concerns the nature and definition of HIV/AIDS, the ways HIV is transmitted, how HIV transmission can be prevented, how HIV testing is conducted, and the meaning of possible HIV test results.(9) This information is distinct from HIV prevention counseling, which is a client-centered motivational session to help decrease HIV risk-taking behaviors. Although CDC stated that this information can be delivered orally or in writing(8), these formats might not be effective for all HIV test recipients, particularly for the estimated 39% of primarily Spanish-speaking Latinos in the US with lower literacy skills(10) and for Latinos with lower health literacy and knowledge about HIV/AIDS and HIV testing.(11-31) Researchers have noted significant problems with the quality, accuracy, and reading levels of written HIV/AIDS and HIV test information.(32-36) Also, the quality of orally-delivered information naturally varies according to test provider experience, knowledge, and time constraints. Moreover, HIV testing settings with limited interpreter services might not be able to offer adequate on-demand Spanish-language HIV/AIDS and HIV test information orally to HIV test recipients.

Videos might be a better alternative of delivering HIV/AIDS and HIV test information for people with lower literacy skills and lower health literacy.(37, 38) Videos combine audio with visual imagery which can work synergistically to enhance the effectiveness of delivering information.(39, 40) Videos also have the capacity to streamline HIV testing efforts because they can be shown on a group or individual basis at any time or location to those awaiting services, potentially reduce staffing requirements and making the testing encounter more efficient.

Over the past several years, we conducted a series of investigations examining HIV/AIDS and HIV test information delivery and knowledge. In one study, English-speaking emergency department (ED) patients were randomly assigned to receive either no information or HIV/AIDS and HIV testing information commensurate with CDC recommendations orally, and then complete a 26-item questionnaire to measure their HIV/AIDS and HIV testing knowledge.(41) Patients in the no information arm answered 50% of the questions correctly, compared to 77% in the orally-delivered information arm ($p<0.001$). During 2004-2005, we produced a professional quality, animated and live-action, 9.5 minute, English-language video, "Do you know about rapid HIV testing?" (41) We then conducted a randomized, controlled, non-inferiority trial comparing HIV/AIDS and HIV testing knowledge among English-speaking ED patients who watched the video or received equivalent information delivered orally by an HIV test counselor before undergoing rapid HIV testing.(42) Patients assigned to the video and the orally-delivered information arms had similar mean scores for correct items (20.1 vs. 20.8) on the 26-item questionnaire from the previous study, which indicated that the English-language video was a viable substitute for orally-delivered information. Also, the majority (94.2%) of participants in both study arms believed they were "well" or "very well informed" by the information they received. (43) Yet, English-speaking Latino ED patients had lower mean scores than non-Latino

whites, regardless of watching the video or receiving information orally, even when controlling for years of education (β -1.19 [-1.98, -0.39]). (42) These findings posed several questions, such as whether or not the video itself is optimal for Latino patients (e.g., it does not reflect cultural needs), if a Spanish-language version of the video might be better for those who are bilingual, or if health literacy might be a more important moderating factor than years of education and should be accounted for in the video development and assessment. Because HIV testing is conducted in a variety of settings, it was also clear that the video needed to be useful for HIV test recipients in non-healthcare as well as healthcare settings.

In response to these unanswered questions and needs, we produced a culturally-sensitive and linguistically-appropriate video for Spanish-speaking Latinos of different health literacy abilities about HIV/AIDS and HIV testing for healthcare and non-healthcare settings. We then conducted a randomized, controlled, non-inferiority trial with the primary objective of determining if the Spanish-language video could be a substitute for orally-delivered information. As secondary objectives, we assessed whether the video was as efficacious as orally-delivered information for those with lower health literacy, investigated the influence of demographic characteristics and HIV testing history on HIV/AIDS and HIV testing knowledge, explored HIV/AIDS and HIV testing topics that might be more difficult for HIV test recipients to comprehend, and evaluated participant satisfaction with the mode of information they received.

Methods

Study Design

We conducted a randomized, controlled, non-inferiority trial to evaluate the efficacy of the video (“¿Qué sabes sobre el VIH y sobre las pruebas de VIH?”/“What do you know about HIV and HIV testing?”) in delivering HIV/AIDS and HIV testing information as compared to in-person, orally-delivered information with an HIV test counselor. The hospital institutional review board approved the study. Written consent was obtained from all participants.

Spanish-Language HIV/AIDS and HIV Testing Video Development

The multi-phase video development process involved creating an updated version of the English-language version of the video, soliciting input on the English-language video among bilingual (English- and Spanish-speaking) Latinos, creating a Spanish-language version of the video, soliciting input on the Spanish-language video among primarily Spanish-speaking Latinos, and then revising the Spanish-language video for the study. This process began with creating an updated English-language version of the video using the original video as a guide.(41) The update included revising the order of information presented in the video to improve clarity and flow, eliminating information that was superfluous to the goals of the video, creating new graphics and images to improve clarity, and adding new information about new HIV testing technologies. Next, we solicited opinions on how the video could be culturally and linguistically adapted for primarily Spanish-speaking Latinos in regards to the video's style, content, images, graphics, and explanations of topics. To solicit these options,

we recruited 60 bilingual (English-and Spanish-speaking) 18-64-year-old Latino patients/clients and 15 bilingual HIV test counselors for these interviews at three healthcare sites (an ambulatory medicine clinic in Providence, Rhode Island; an ED in Los Angeles, California; and a sexually transmitted disease clinic in San Juan, Puerto Rico) and three non-healthcare sites (community-based organizations that provide HIV testing chiefly for Latinos in Chicago, Illinois; Miami, Florida; and San Antonio, Texas). Participant Spanish-language speaking preference and ability was verified using the two-question sequence recommended by Karliner, et al.(44) and the IPT® II Spanish Oral Test (Ballard & Tighe Publishers, Brea, CA). Of the 60 patients/clients, 25% were classified as having lower health literacy based on the Short Assessment of Health Literacy-Spanish (SAHL-S)(45), 52% were born outside the continental US (Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Mexico, Nicaragua, Peru, and Puerto Rico), and 47% were classified as having lower US acculturation, according to the Short Acculturation Scale for Hispanics (SASH).(46) To permit a diversity of perspectives, the 60 patients/clients were recruited according to quota that created similar sized-groups based upon age (18-29-years-old, 30-45-years-old, 46-64-years-old), gender, and recruitment setting. The age group 18-64-year-olds was chosen for this study because this is the age range of adults whom CDC recommends should be screened for HIV in healthcare settings. (8)

Participants watched the video on a tablet computer, listened to the audio using headphones and were interviewed afterwards using a series of closed and open-ended questions to elicit participant opinions on all aspects of the video (style, content, images, graphics, and explanations of topics). The interviews were audio recorded, transcribed, and reviewed by the study authors. The English-language video draft was then adapted, translated and revised for primarily Spanish-language speakers based on the results of the interviews. Translation accuracy was verified by the native Spanish-speaking members of the research team and through recommended translation/back-translation techniques.(47-49)

We next performed an evaluation of the adapted Spanish-language draft version of the video. Qualitative assessments were conducted at the same three healthcare and three non-healthcare sites to evaluate the Spanish-language video draft among another 60 18-64-year-old primarily Spanish-speaking Latino patients/clients and another 15 bilingual HIV test counselors. These assessments were designed to assess how well viewers understood the video's content; identify components that were not presented well; uncover misconceptions about HIV/AIDS and HIV testing; and solicit feedback on how the video could be improved (e.g., content, images, graphics, language), particularly for primarily Spanish-speaking Latinos. Quota based on the demographic characteristics for the qualitative assessments were the same as the aforementioned interviews for the updated English-language video, except that all patients/clients in these assessments primarily spoke Spanish. Of these patients/clients, 27% were classified as having lower health literacy skills based upon the SAHL-S(45), 82% were born outside the continental US (Colombia, Cuba, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, and Puerto Rico), and 82% were classified as having lower US acculturation per the SASH.(46) The interviews were audio recorded, transcribed, and reviewed by the study authors, and the video was revised using the findings and observations from the interviews.

The final version of the video, “¿Qué sabes sobre el VIH y sobre las pruebas de VIH?” (“What do you know about HIV and HIV testing?”), is a 15-minute animated and live-action, Spanish-language video containing CDC-recommended elements of HIV/AIDS and HIV testing information(9), as well as information about acute HIV infection and current methods of HIV testing (rapid and conventional; oral, fingerstick and phlebotomy sampling; and antibody, antigen, and ribonucleic acid testing) without mention of any specific testing brand (See supplemental material for video content outline). The narrated video follows two protagonists (male and female; purposely racially/ethnically ambiguous and not named to appeal to a wider audience and avoid social labels) as they receive information about HIV/AIDS and HIV testing and proceed through the HIV testing process. Animation, graphics, images, still shots, text, and live-action segments are used to emphasize the topics presented. The Fernandez-Huerta Readability Score (50) for the final script for the video was 85, indicating an “easy” level of reading difficulty. The video purposely avoids the use of slang and idiomatic expressions and presents a “neutral”, “accentless”, or “broadcast” Latin American Spanish (51) that should be understood easily by those from the Americas; participants in the qualitative assessments overwhelmingly verified that our goal of creating a “neutral” Spanish-language video was accomplished.

Development of the HIV/AIDS and HIV Testing Knowledge Questionnaire

The HIV/AIDS and HIV Testing Knowledge Questionnaire (hereafter referred to as the Knowledge Questionnaire) used in this study was adapted from the questionnaire created for the prior English-language rapid HIV testing video study (41, 42) and was updated commensurate with the content of the current Spanish-language video. The questionnaire contains five domains that parallel the content of the video: the definition, nature, and distinction between HIV/AIDS; HIV transmission; HIV prevention; HIV testing methods; and the interpretation and meaning of HIV test results.

Participants in the aforementioned qualitative assessments of the Spanish-language video also underwent separate cognitive-based assessments of the questionnaire. These assessments consisted of interviews using a defined script created by the authors using accepted techniques (52-55) to evaluate participant comprehension of the questionnaire. The assessments aimed to identify concepts, phrases, and words that were not understood or not interpreted as intended and to determine the reason(s) why they answered questions incorrectly (e.g., misunderstanding of the question itself, the concept underlying the question, a mis-translation, a cultural adaptation problem, or a concept that was not adequately expressed in the video). Questions also were pilot tested to evaluate their discriminative ability; questions answered correctly by a minority or majority of the participants were discarded or revised. The questionnaire was revised in an iterative fashion during the cognitive-based assessments and pilot testing period until a final draft that performed well was produced. Of note, the prior English-language questions were in the form of a declarative statement with true/false/don't know response options.(41, 42) The cognitive-based assessments revealed that this format performed poorly when used for primarily Spanish-speakers (participants understood the underlying concepts, but did not understand the statement/response format), so the questions were converted to an interrogative (a question) format with yes/no/don't know response options, which performed

considerably better in the assessments and pilot testing. The 25-item questionnaire has a Fernandez-Huerta Readability Score (50) of 81 ("easy" level of reading difficulty), and demonstrated excellent internal consistency (Cronbach's $\alpha=0.80$). In addition, in a brief pilot study among 15 Spanish-speaking ED patients, short-term HIV/AIDS and HIV testing knowledge was greater after than before watching the video, as measured by the questionnaire (19.9 post vs. 16.1 pre, 3.73; $p<0.001$). Among another 15 Spanish-speaking ED patients who did not watch the video and were not provided HIV/AIDS and HIV testing information, test-retest reliability of the questionnaire at one month was $r=0.61$.

Setting and Participants for the Randomized, Controlled, Non-inferiority Trial

From September 2011 to February 2012, 150 adult Spanish-speaking Latinos were recruited at an ambulatory medicine clinic ($n=50$) and an ED ($n=50$) at an urban, not-for-profit, medical school-affiliated hospital and two related non-healthcare, community-based organizations in Providence, Rhode Island, that provide educational and support services to immigrants ($n=50$).

Individuals were study eligible if they primarily and preferentially spoke Spanish, self-identified as Latino, were 18-64-years-old; did not present for evaluation of a psychiatric illness; were not prison inmates; were not critically ill or injured, intoxicated, known to be HIV infected, in an HIV vaccine study, or have a physical disability or mental impairment that prevented them from participating. Spanish-language preference and ability was verified using the two-question sequence recommended by Karliner, et al. and the IPT® II Spanish Oral Test (Ballard & Tighe Publishers, Brea, CA). (44) (45)

Trial Protocol

In the healthcare settings, a research assistant (RA) reviewed the medical records of those present during data collection times, approached those who appeared to be study eligible, verified their study eligibility, and enrolled those who were eligible and willing to participate. In the non-healthcare settings, the RA solicited volunteers from classes and through posted announcements.

Participants were interviewed by the RA about their demographic characteristics and HIV testing history, nativity, US acculturation (using the SASH (46)), and were administered the SAHL-S (45) to assess their health literacy level (lower or higher). Participants were randomly assigned to the two study arms using block randomization at each study site, stratified by health literacy level.

Participants randomly assigned to the video arm were shown the video on a tablet computer and listened to the audio using headphones. The RA was not permitted to clarify or answer any questions about the video's content. For the orally-delivered information arm, the RA, a state-certified HIV test counselor, presented the information orally in Spanish to participants from memory (with the help of an outline) according to a defined script and did not use visual aids. The orally-delivered information and video had identical factual content. As per the defined script, the RA asked each participant an introductory question for each topic, acknowledged the participant's response, and then gave a short explanation of that topic. The RA provided the same information to all participants regardless of the participants'

responses. The median time elapsed to deliver the orally-delivered information was 10 minutes. The RA underwent over 40 hours of mock interviews to practice the orally-delivered information with the study authors prior to the onset of the trial, and periodic checks to ensure fidelity of delivery were conducted during the trial.

After the video presentation or receiving information orally, participants completed the Knowledge Questionnaire using an audio computer self-interviewer (ACASI) system. Afterwards, the RA reviewed the correct responses to the questionnaire, conducted rapid HIV testing, and offered HIV risk-reduction counseling. No participants were identified as HIV infected through testing.

Data Analysis

Summary statistics on patient demography, nativity, US acculturation, health literacy level, and HIV testing history were compared by study arm and study site using Wilcoxon rank-sum and Student's t-test for continuous variables and Fisher's exact test and Pearson's χ^2 test for categorical variables, as appropriate. Differences at the $\alpha=0.05$ level were considered significant.

For the primary objective of the study, our *a priori* non-inferiority criterion (56-58) was that the video would be accepted as not inferior to the orally-delivered information arm if the 95% confidence interval (CI) of the difference in mean scores on the Knowledge Questionnaire between the two arms was less than a 10% decrease in the orally-delivered information arm's mean score. Based upon the results of our previous English-language video study, a minimum sample size of 60 participants per randomization arm was needed (assuming 90% power).(42) Additional participants were recruited to permit greater power for the additional study objectives and account for unexpected variations between randomization arms.

For the secondary objectives, we compared mean scores on the questionnaire by health literacy level per Wilcoxon rank-sum testing. We further investigated the influence of demographic characteristics, nativity, US acculturation, health literacy level, and HIV testing history on mean scores on the questionnaire using multivariable linear regression. Beta-coefficients (β) and corresponding 95% CIs were estimated. Data on participant satisfaction with the delivery mode of HIV/AIDS and HIV testing information received was summarized.

In an exploratory analysis, we sought to identify concepts examined in the questionnaire that were not well understood by participants, were not well presented by either or both information delivery modes, or could indicate problematic questions. For the exploratory analysis, we compared the proportions of correct responses and "Don't know" responses for each question and by topic areas or domains by calculating the difference in proportions by study arm and using Fisher's exact testing. To be maximally sensitive to potential differences between study arms, we did not adjust for multiple comparisons in the exploratory analysis.

Results

Participant Characteristics

Of the 150 participants, 73% were born outside the continental US. The 109 participants born outside the continental US were from the Dominican Republic (43%), Puerto Rico (22%), Guatemala (17%), El Salvador (7%), and Mexico (5%); the remainder (6%) from Bolivia, Columbia, Ecuador, and Venezuela. Of the 150 participants, 107 (72%) previously tested for HIV not as part of a blood donation, 23% had been tested within the past year, 51% within the past five years, and 26% more than five years ago. As shown in Table 1, the study arms were similar by demographic characteristics (except for race), nativity, SASH scores (US acculturation), health literacy level, and HIV testing history. Of those not US born ($n=109$), the median number of years living in the US was similar by study arm (17 [video] vs. 14 [orally-delivered information]; $p<0.39$). In addition, the study arms were similar by these participant characteristics by study site, except for a predominance of Black Hispanics and individuals with fewer years of formal education at the community-based organizations (data not shown).

Mean Scores on the Knowledge Questionnaire

The mean scores on the Knowledge Questionnaire were (20.4; 95% CI: 19.5~21.3) for the video arm and (20.6; 95% CI: 19.7~21.5) for the orally-delivered information arm. The 95% CI of the difference in mean scores between the two study arms ($= -0.15$; 95% CI: $-1.4\sim1.1$) was less than a 10% reduction in the mean score of the orally-delivered information arm (< 2.06), which satisfied the non-inferiority criterion for the trial. The absolute difference between the means of the two study arms of 0.15 indicates that the mean scores differed on average by much less than one correctly answered question.

Mean scores among lower health literacy participants were similar (18.3 [video] vs. 19.6 [oral]; $p<0.30$). In the multivariable linear regression analyses, lower mean scores were related only to health literacy level ($\beta -2.4$; 95% CI: $-3.8, -1.1$), and not demographic characteristics (age, gender, race, insurance status, years of formal education, nativity, US acculturation, study arm (video or orally-delivered information), study location (ambulatory medicine clinic, ED, or community-based organization) or prior HIV testing. Per these results, participants with lower health literacy correctly answered 2.4 questions fewer than higher health literacy participants.

Satisfaction with Orally-delivered Information or Video

Of the 75 participants in the orally-delivered information arm, 49% stated that they preferred to receive HIV/AIDS and HIV testing information in person, 9% through a video, 37% had no preference, and 4% were unsure which mode they preferred. However, of the 75 participants in the video arm, 28% stated that they preferred to receive HIV/AIDS and HIV testing information in-person, 37% from a video, 31% from either mode, and 4% were unsure which mode they preferred. For both arms, the most frequent reason cited for preferring in-person information was the ability to ask questions and interact with testing staff. The most frequently cited reasons for preferring the video were that it was entertaining, private, and provided more information. The most frequently cited reason for

having no preference for either mode was that both methods provide equivalent, correct information. Of those in the video arm, 69% stated that they were very well informed, 24% well informed, 5.3% more or less informed, and 1.3% not well informed. Of those in the orally-delivered information arm, 75% stated that they were very well informed, 21% well informed, and 4% more or less informed.

Responses to the Knowledge Questionnaire

Table 2 provides the results of the exploratory analysis identifying HIV/AIDS and HIV testing concepts or questions that appeared to be less understood by all participants or were potentially less well presented. When considering the five domains evaluated by the questionnaire, scores were relatively but not significantly lower ($p>0.05$ for all comparisons) on the HIV testing topics than on the nature of HIV/AIDS, HIV transmission and HIV prevention topics. Scores on the five domains did not differ by study arm. As shown in Table 2, there were four individual questions that were correctly answered by 75% of all participants (Q1, Q2, Q14, and Q24). There were eleven questions for which 5% of all participants chose “Don't know” as an answer (Q2, Q3, Q8, Q12, Q15, Q18, Q19, Q22, Q23, Q24 and Q25).

Per the results of Fisher's exact analysis, there was no difference in the proportion of correct responses and “Don't know” responses between the in-person informational session and video arms (Table 2). However, the absolute difference in proportions of correctly answered questions was 5 percentage points greater in the orally-delivered information arm for six questions (Q2, Q4, Q6, Q11, Q12, and Q24), and for three questions (Q18, Q20, Q23) in the video arm. The absolute difference in proportions of “Don't know” responses was 2 percentage points greater in the orally-delivered information arm for three questions (Q1, Q3, and Q22), and for seven questions (Q2, Q3, Q6, Q12, Q15, Q17, Q24) in the video arm.

Discussion

Based upon these study results, the Spanish-language video, “¿Qué sabes sobre el VIH y sobre las pruebas de VIH?” (“What do you know about HIV and HIV testing?”) is an acceptable and efficacious substitute for in-person orally-delivered information from an HIV test counselor in providing HIV/AIDS and HIV testing information to Spanish-speaking Latinos in healthcare and non-healthcare settings. The video also is useful for Spanish-speaking Latinos with lower or higher health literacy. The CDC has called for an expansion of HIV testing in healthcare and non-healthcare settings, and we are hopeful that this video can assist in these efforts. Based upon the results of the trial, we made further refinements to the video and prepared a comparable English-language version, which are freely available for download and distribution (<http://biomed.brown.edu/hiv-testing-video/>).

It should be noted that there is no accepted level of adequate HIV/AIDS and HIV testing knowledge, no known adequate level of knowledge that should be achieved or required of those who are tested for HIV, and no standardized instrument to measure HIV/AIDS and HIV testing knowledge or to assess levels of knowledge in these areas. We believe that the content and intent of our questionnaire to assess HIV/AIDS and HIV testing knowledge is appropriate and applicable to CDC-recommended content of HIV/AIDS and HIV testing

information that should be provided at the time of HIV testing. Of course, others might consider different domains to be more important. Regardless of this potential limitation, the exploratory analysis that examined responses to each item in the questionnaire indicates that myths and misperceptions about HIV/AIDS (such as the ability of mosquitoes to transmit HIV) remain no matter how information about HIV/AIDS and HIV testing is presented. The impact of HIV/AIDS and HIV literacy problems is unclear, but likely furthers the epidemic through failures of prevention and persistence of stigma. Until methods to establish adequate HIV/AIDS and HIV testing literacy are known, test providers should be mindful that gaps in knowledge among test recipients can remain even whether information is presented orally or by video. Further, as shown by the lower scores on the questionnaire by the lower health literacy participants, gaps in knowledge can be greater for those with lower health literacy. In addition, the participant satisfaction results indicate that participants who tried the video were more open to receiving information from this source, yet the opportunity to ask questions and seek clarifications was desired. HIV testing efforts that employ video-based methods to provide HIV/AIDS and HIV testing information should consider providing opportunities for clarification and questions whenever possible and practical.

Limitations

We cannot determine if other forms of presentation of HIV/AIDS and HIV test information (dance, music, pictorial brochures, etc.) or a combination of a video with an in-person session with an HIV counselor are better means of providing information about HIV/AIDS and HIV testing than the methods tested in this study. In future studies, we hope to determine if the video can work synergistically with these other possible ways to present this information. Next, the study compared the “efficacy” of video vs. orally-delivered information rather than “effectiveness” because: (1) the in-person session involved a highly-trained HIV test counselor delivering a well-rehearsed, standardized message in a focused setting; (2) participants watched the video unencumbered by other distractions; and (3) the participant population were not seeking testing, which might have reduced their motivation to learn about the topic. We expect that among other populations and in other settings with more variability of delivery and content of the message, experience and training of the person delivering information orally, as well as distractions to watching the video (e.g., presented in a testing waiting room), the results comparing the two methods might differ from those of this study. Nevertheless, the results indicate that under ideal settings, the video is a useful substitute for orally-delivered information for those who are about to be tested for HIV. Further, this study did not examine the potential effects on future HIV-related behavior, such as risk-taking and HIV testing. We hope to examine these effects in a future study. In addition, although primarily Spanish-speaking Latinos, especially those with lower health literacy skills, might be considered a higher risk group for HIV, we did not examine HIV risk or examine the efficacy of the video among higher HIV risk groups within the population under study.

Conclusions

The Spanish-language video “¿Qué sabes sobre el VIH y sobre las pruebas de VIH?” (“What do you know about HIV and HIV testing?”) is an acceptable and efficacious

substitute for HIV/AIDS and HIV testing information delivered orally by an HIV test counselor for Spanish-speaking Latinos in healthcare and non-healthcare settings. The video is appropriate for those with lower and higher health literacy levels, although those with lower health literacy levels might have lower overall knowledge on this topic regardless of information delivery mode.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1
Demographic Characteristics, Nativity, US Acculturation, Health Literacy and HIV Testing History of Participants

	Video	In Person Session	p-value ⁴
	<i>n=75</i>	<i>n=75</i>	<i>p></i>
<i>Demographic Characteristics</i>			
Median age in years (IQR)¹	36 (27-47)	37 (27.5-47.5)	0.80
	%	%	
Gender			0.61
Male	34.6	30.0	
Female	65.3	45.0	
Race			0.01
White Hispanic	89.4	72.0	
Black Hispanic	10.6	28.0	
Partner Status			0.53
Never Married	30.6	29.3	
Divorced/Widowed/Separated	16.0	25.3	
Married	32.0	29.3	
Unmarried Couple/Domestic Partnership	21.3	16.0	
Health Insurance Status			0.59
Private	6.6	5.3	
Governmental	45.3	37.3	
Private and Government	0.0	1.3	
None	48.0	56.0	
Years of Formal Education			0.27
None	0.0	2.6	
Grades 1- 8	13.3	16.0	
Grades 9-11	38.6	26.6	
Grade 12	30.6	28.0	
Some College	17.3	26.6	
<i>Nativity/US Acculturation/Health Literacy</i>			
US Born			1.00
Yes	28.0	26.6	
No	72.0	73.3	
Language Preference for Medical Care			0.44
Spanish	46.6	54.6	
English	18.6	12.0	
English or Spanish	34.6	33.3	
SASH² US Acculturation Level			0.73

	Video	In Person Session	p-value ⁴
	<i>n=75</i>	<i>n=75</i>	<i>p></i>
Demographic Characteristics			
Lower	62.7	66.7	
Higher	37.3	33.3	
SAHL-S³ Health Literacy Level			1.00
Lower	38.7	38.7	
Higher	61.3	61.3	
HIV Testing History			
History of Any HIV Test			0.84
Tested, but Not Part of a Blood Donation	64.0	60.0	
Tested as Part of a Blood Donation	4.0	2.6	
Tested and Donated Blood	6.6	12.0	
No Known HIV Test	20.0	21.3	
Don't Know	5.3	4.0	

¹ IQR: inter-quartile range

² SASH: Short Acculturation Scale for Hispanics

³ SAHL-S: Short Assessment of Health Literacy-Spanish

⁴ p-value: Comparison of video vs. in-person informational session participants by Wilcoxon rank-sum, Student's t-test, Fisher's Exact and Pearson's χ^2 test, as appropriate

Table 2
Comparison of Correct and “Don’t Know” Responses to the Questionnaire by Randomization Arm

Order of Question Presentation in Trial	Question Domain, Questions, and Correct Responses	Comparison of Proportions of Correct Responses						Comparison of Proportions of “Don’t Know” Responses					
		All Participants n=150	In-person Session n=75	Video n=75	Video - In-person	p-value ³		All Participants n=150	In-person Session n=75	Video n=75	Video - In-person	p-value ³	
<i>Q¹</i>		%	%	%	& in %	P<		%	%	%	& in %	P<	
	Definition and Nature of HIV/AIDS												
Q6	If you become infected with HIV, can you completely remove the virus from your body with medications? (No)	84.7	88.0	81.3	-6.7	0.37		2.7	1.3	4.0	2.7	0.62	
Q22	Do you have to be infected with HIV to get AIDS? (Yes)	82.7	84.0	81.3	-2.7	0.83		5.3	6.7	4.0	-2.7	0.72	
Q16	Can you always tell if someone has HIV by their appearance? (No)	86.7	86.7	86.7	0.0	1.00		4.0	4.0	4.0	0.0	1.00	
Q3	Can a woman who is no longer getting her period become infected with HIV? (Yes)	80.0	80.0	80.0	0.0	1.00		9.3	4.0	14.7	10.7	0.05	
Q20	Is there a difference between being infected with HIV and having AIDS? (Yes)	78.0	74.7	81.3	6.7	0.43		3.3	2.7	4.0	1.3	1.00	
	<i>Definition and Nature of HIV/AIDS; domain subtotal</i>	82.4	82.7	82.1	-0.5	0.87		4.9	3.7	6.1	2.4	0.34	
	HIV Transmission												
Q21	Can you get infected with HIV from someone who has HIV but has no symptoms? (Yes)	92.0	96.0	88.0	-0.8	0.13		3.3	2.7	4.0	1.3	1.00	
Q9	If someone with HIV kisses you, will you get infected with HIV? (No)	82.7	82.7	82.7	0.0	1.00		2.0	2.7	1.3	-1.3	1.00	
Q13	If a mother has HIV, is her breast milk safe for her child? (No)	94.0	93.3	94.7	1.3	1.00		2.7	2.7	2.7	0.0	1.00	
Q5	Is it possible to be infected with HIV for many years and not know it? (Yes)	84.7	84.0	85.3	1.3	1.00		4.7	4.0	5.3	1.3	1.00	
Q17	If a mosquito bites you after biting someone who has HIV, can you get infected with HIV? (No)	90.7	90.7	90.7	0.0	1.00		3.3	1.3	5.3	4.0	0.37	
	<i>HIV Transmission: domain subtotal</i>	88.8	89.3	88.3	0.4	0.69		3.2	2.7	3.7	1.1	0.58	
	HIV Prevention												
Q18	Can you prevent an HIV infection by using a mask over your mouth and nose? (No)	90.7	88.0	93.3	5.3	0.40		5.3	5.3	5.3	0.0	1.00	
Q4	Can you prevent an HIV infection using only new needles to inject drugs? (Yes)	72.0	74.7	69.3	-5.3	0.59		4.0	5.3	2.7	-2.7	0.68	
Q25	Can washing you genitals and private parts help prevent an HIV infection? (No)	84.7	85.3	84.0	-1.3	1.00		5.3	4.0	6.7	2.7	0.72	
Q7	Can you become infected with HIV by using the same bathroom as someone who has HIV? (No)	90.7	89.3	92.0	2.7	0.78		2.7	2.7	2.7	0.0	1.00	
Q11	If your partner has HIV, can you prevent an HIV infection by using condoms? (Yes)	86.7	89.3	84.0	-5.3	0.47		2.7	2.7	2.7	0.0	1.00	
	<i>HIV Prevention: domain subtotal</i>	84.9	85.3	84.5	-0.8	0.80		4.0	4.0	4.0	0.0	1.00	
	HIV Testing Methods												

		Comparison of Proportions of Correct Responses					Comparison of Proportions of “Don’t Know” Responses				
Order of Question Presentation in Trial	Question Domain, Questions, and Correct Responses	All Participants <i>n</i> =150	In-person Session <i>n</i> =75	Video <i>n</i> =75	Video - In-person	p-value ³	All Participants <i>n</i> =150	In-person Session <i>n</i> =75	Video <i>n</i> =75	Video - In-person	p-value ³
Q14	Is it necessary to wait 1 to 2 weeks to receive the results of a rapid HIV test? (No)	71.3	70.7	72.0	1.3	1.00	2.0	1.3	2.7	1.3	1.00
Q23	If someone has HIV and takes medication to treat it, does this make them live a shorter time? (No)	83.3	80.0	86.7	6.7	0.38	6.7	6.7	6.7	0.0	1.00
Q8	Can oral fluids be used for an HIV test? (Yes)	78.7	80.0	77.3	-2.7	0.84	5.3	5.3	5.3	0.0	1.00
Q10	If the person with whom you are having sex tell you that he/she does not have HIV, should you get tested anyway? (Yes)	98.0	98.7	97.3	-1.3	1.00	0.0	0.0	0.0	0.0	1.00
Q1	If a pregnant woman has HIV, will her baby definitely have HIV too? (No)	54.7	53.3	56.0	2.7	0.87	4.0	5.3	2.7	-2.7	0.68
	HIV Testing Methods: domain subtotal	77.2	76.5	77.9	1.3	0.72	3.6	3.7	3.5	-0.3	0.88
	Meaning of HIV Test Results										
Q2	If you became infected with HIV one week ago, can your HIV test result be negative? (Yes)	70.5	74.3	66.7	-7.7	0.37	6.0	4.1	8.0	3.9	0.49
Q15	If your HIV test result is negative, does this mean that it is impossible for your body to become infected with HIV in the future? (No)	84.7	82.7	86.7	4.0	0.65	5.3	2.7	8.0	5.3	0.28
Q12	Does a preliminary positive test result mean that you can possibly infect others with HIV? (Yes)	78.7	81.3	76.0	-5.3	0.55	12.7	8.0	17.3	9.3	0.14
Q19	If your final HIV test result is a positive, can this test result change to negative if you are tested again in 3 months? (No)	81.2	79.7	82.7	2.9	0.68	6.0	5.4	6.7	1.3	1.00
Q24	Is a special HIV test only necessary for those whom have been infected with HIV for many years? (No)	70.7	74.7	66.7	-8.0	0.37	7.3	4.0	10.7	6.7	0.21
	Meaning of HIV Test Results: domain subtotal	77.1	78.5	75.7	-2.8	0.48	7.5	4.8	10.1	5.3	0.93

¹ Q: Question number

² : Differences in proportions between in-person session and video arms

³ p-value: Comparison of differences in proportions using Pearson's X2 test for in-person session and video