Short-form video informed consent compared to written consent for adolescents and young adults: a randomized experiment

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Abstract

Background: Adolescents and young adults have the highest prevalence of e-cigarette use (“vaping”), but they are difficult to enroll in health research studies. Previous studies have found that video consents can improve comprehension and make informed consent procedures more accessible, but the videos in prior studies are much longer than videos on contemporary social media platforms that are popular among young people.

Objective: This study aimed to examine the effectiveness of a short-form (90 second) video consent compared to a standard written consent for a vaping cessation study for adolescents and young adults.

Methods: We conducted an online experiment with 435 adolescents and young adults (aged 13-24) recruited by an online survey research provider. Each participant was randomly assigned to view either a short-form video consent or a written consent form describing a behavioral study of a social media-based vaping cessation program. Participants completed a post-exposure survey measuring three outcomes: (1) comprehension of the consent information, (2) satisfaction with the consent process, and (3) willingness to participate in the described study. Independent sample T-tests and Chi-square tests were conducted to compare the outcomes between the two groups.

Results: 435 cases comprised the final analytic sample. Participants who watched the short-form video completed the process in less time (average 4.5 minutes) than the written consent group (5.1 minutes). Participants in the video consent condition reported significantly higher levels of satisfaction with the overall consent process, but no difference in other aspects of satisfaction such as ability to complete consent unassisted and satisfaction with amount of time spent compared to participants who read the written consent. There was no difference in the composite measure of overall comprehension, though in individual measures, participants who watched the short-form video consent performed better in five measures of comprehension about risk, privacy, and procedures, while participants who read the written document consent had better comprehension of one measure of study procedures. There was no difference between the groups in willingness to participate in the described study.

Conclusions: Short-form informed consent videos had similar comprehension and superior satisfaction among adolescents and young adults. Short-form-informed consent videos may improve satisfaction with the informed consent process, although video and written consent forms had different strengths with respect to comprehension. Short-form videos may improve study enrollment among adolescents and young adults.

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Conclusion: Short-form informed consent videos had similar comprehension and superior satisfaction among adolescents and young adults. Short-form-informed consent videos may improve satisfaction with the informed consent process, although video and written consent forms had different strengths with respect to comprehension. Short-form videos may improve study enrollment among adolescents and young adults.

Introduction

Most standard informed consent processes utilize a written document that explains the purpose of the research, study procedures, the risk and benefits of the study, alternative procedures, and a contact person to answer questions about the research and participants' rights. After reading the documents, participants sign or otherwise indicate that they understood the informed consent document. However, many consent documents are lengthy and contain complex terminology. Participants with less education or experience with research, including adolescents and young adults, may not understand, and they may skim or skip the consent document [1]. Even though the written informed consent procedure is valid, its length and use of terms unfamiliar to participants may result in misinterpretation of study procedures, or it may discourage participation. This, in turn, can lead to noncompliance, lower enrollment rates, and lack of generalizability of findings [1,2].

Systematic reviews of the literature have shown that using digital tools, such as video and audio platforms, for consent hold promise for improving comprehension of study information, and potentially improving participation among people often underrepresented in research studies (e.g., minors, young adults, and participants from different cultural and religious backgrounds, non-English speaking people, and people with disabilities) [3, 15, 16]. However, very few of these studies have been conducted with young people. One study comparing an interactive iPad consent to a traditional written consent with parents and children found no difference for parents, but significantly greater understanding among the children in the iPad condition [19]. Another study of parents and adolescents found a multimedia PowerPoint presentation for permission/assent had significantly better comprehension than the paper process for both parents and children, with most significant differences for the adolescents [21]. Additionally, a study of informed consent for a clinical study of lung disease found that participants who viewed interactive videos had equivalent comprehension and greater satisfaction compared to those who read the standard informed consent document [4,5].

Media has changed substantially since these studies were published, and social media videos are increasingly popular among adolescents: in 2022, 95% of adolescents reported watching YouTube videos, and 67% used TikTok [9]. Although multimedia video consent has been shown to serve as an effective alternative to standard written consent, the length and format of the multimedia consent in previous studies are different from those on social media platforms popular among adolescents and young adults. Social media videos are short: TikTok videos average length between August 2022 and January 2023 was 32-42 seconds depending on account size [10]. One study that investigated student engagement with educational videos found that shorter educational videos between 0 and 3 minutes had the highest engagement rate compared to educational videos longer than 6 minutes [11]. This study also found that students engaged more when the speaker addressed the camera with intentional eye contact compared to other videos such as PowerPoint slides and digital tablet drawings with voice overs. Another study that examined social short form videos effect on youth well-being found that younger people under the age of 22 spent more time watching short form videos and were more satisfied with entertainment/relaxation themed short form videos [12]. Despite the popularity of short form videos among adolescents and young adults, they have not been studied as a format for informed consent in this young priority population. This study fills that gap. We tested the effectiveness of a short-from video consent compared to the standard written consent among adolescents and young adults in terms of comprehension, satisfaction, and willingness to participate in a hypothetical study of a vaping cessation program.

Methods

Study Procedure and Participants

We performed a randomized experiment via a one-time online survey with 435 participants between the age of 13 and 24. Participants were recruited by a commercial research company, Generation Lab, using standard recruitment procedures such as member referrals, email lists, and social media ads. The inclusion criteria for our study were: 1) English literacy; 2) 13-24 years old; 3) have access to a computer or mobile phone with the capacity to play videos and complete the online survey. After signing consent for the study, participants were randomly assigned to one of two groups: The short-form video consent group (experimental condition) or the written consent group (control condition). Participants in the experiment group watched a 90 second consent video that contained information about a hypothetical behavioral study about a vaping cessation program; The video content had a young adult English speaker directly addressing the video consent viewer with clear message delivery and variable tones of voice (Figure 1). The formatting style was similar to TikTok social media videos. The control group read a written document that contained the same information about the behavioral study. Immediately after exposure to the informed consent, participants completed a questionnaire that measured participants' comprehension, satisfaction, and willingness to participate in the described study. The study was approved by the UCSF Institutional Review Board (IRB).

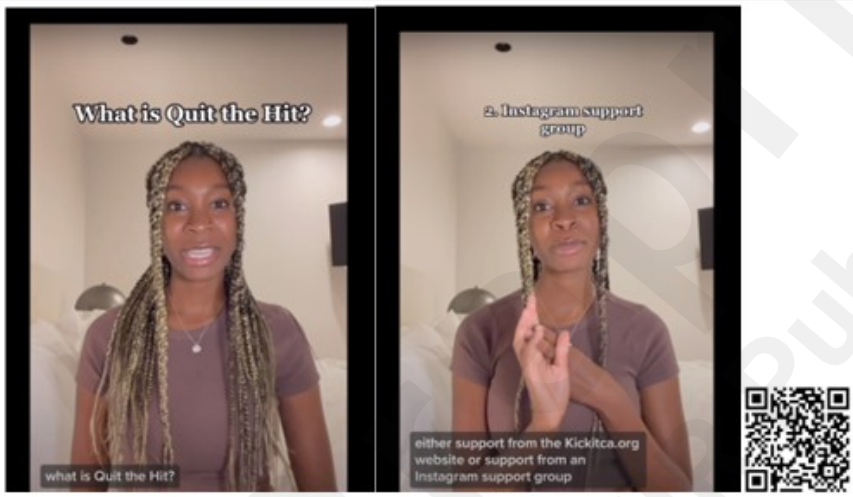

Figure 1: Short-form video consent screenshots showing eye contact, gestures, and facial expression. (QR code link to the short-form video consent)

Outcome Measures

The post-exposure survey included multiple-choice questions addressing 3 outcome variables: comprehension of the consent information, satisfaction with the consent process, and willingness to participate in the described study.

Comprehension of the consent information consisted of 5 main questions adapted from prior research [4] including 11 individual items (Table 2) measuring overall study purpose and length, e.g., "What is the study about?" (multiple choice), and "If I choose to participate, I am required to remain in the study for the full 6 months" (true/false); 3 items addressing study risks, and 5 items addressing specific study procedures. For each of the 11 items, a correct answer was coded with "1" and incorrect answer was coded with "0". The overall comprehension score was calculated by adding up the number of correct answers (range 0-11).

Satisfaction with the consent process was assessed by 3 questions adopted from a prior study [4]: "How satisfied were you with your ability to complete the consent process for this research study on

your own without any staff?", "How satisfied were you with the time required to complete the consent process?" and "How satisfied were you with the overall consent process?" Response options for these 3 questions were on a 7-point Likert scale, consistent with the prior study using this measure [4]. Answers were coded with a value of 1 representing completely dissatisfied and a value of 7 representing completely satisfied.

Willingness to participate in the described study was assessed by a single question: "Based on the consent you viewed, if you qualified for the study, how likely would you participate in this study?", with 5 Likert response options: "1=Very unlikely," "2=Unlikely," "3=Neither likely nor unlikely," "4=Likely," or "5=Very likely."

Sociodemographic characteristics included age, gender, sexual orientation, race, education level, and health literacy. Health literacy was assessed by the question: "How often do you need to have someone help you when you read instructions, pamphlets, or other written material from your doctor or pharmacy?"[13] Response options for the health literacy question were coded "5=Never", "4=Rarely", "3=Sometimes", "2=Often", "1=Always", with a value of 5 representing the high level of health literacy and ≤4 representing the low level, consistent with prior research [13]. Vaping history was measured with an optional question: "Have you ever vaped nicotine in your life?" with response options "yes" and "no".

Statistical Analysis

All responses were coded and entered into IBM SPSS Statistics 26 for data cleaning and analysis. After receiving 435 survey responses, the dataset was screened by Generation Lab for missing data and outliers to determine average survey duration. Outliers far from the average survey duration of 5 minutes were removed from the study sample. Specifically, Generation Lab defined and identified outliers utilizing the standard 1.5*IQR (interquartile range) rule, where any value that is 1.5x IQR greater than the third quartile and 1.5X IQR less than the first quartile is designated as an outlier [14]. Following these criteria, Generation Lab removed 24 outlier cases in the written consent group and 31 outlier cases in the short-formed consent video group from the study sample to determine average survey duration was calculated after outliers were removed; no cases were removed due to missing data or unanswered question items. Descriptive statistics were computed for demographics of the overall sample, written consent group and short-formed consent video group. A series of independent samples T-tests and Chi-square tests were used to assess homogeneity of participant characteristics between the two groups and compare outcomes (comprehension, satisfaction, and willingness to participate) between the two groups. Because participants of different ages or with experience with vaping might have more familiarity with the topic or more willingness to participate in the study, we conducted pre-specified subgroup analyses to examine if there were differences in the outcomes between adolescents and young adults, and among those with vaping experience. Analysis was carried out using SPSS version 26. The level of significance for all analyses was set at $P < .05$.

Results

Participant Characteristics

Of the 435 participants, 215 were randomized to the video consent group and 220 were randomized to the written consent group. The average age of the participants was 18.67 years (SD=2.69). For gender identity, 49.0% of the participants identified as male, 40.9% as female, and 10.0% as non-binary, transgender, queer or other identity. For race/ethnicity, 41.4% identified as Non-Hispanic (NH) White; 24.6% identified as NH Black; 13.1% identified as NH Asian; 14.3% identified as

Hispanic; and 5.3% identified as Other/Multiracial. For education, participants ranged from 9th grade through college, with the largest group (21.6%) in 12th grade. The majority of the participants (84.8%) self-reported high level of health literacy. In addition, 49.4% of the participants reported experience with vaping at some time in their life (Table 1). Excluding outliers, the average survey completion time was 4.5 minutes for the video consent group and 5.1 minutes for the written consent group.

Table 1: Demographic characteristics, health literacy, and vaping experience in study participants by condition

Characteristics	Total (N=435) (%)	Video Consent Group (n=215)(%)	Written Consent Group (n=220)(%)
Demographics			
Age, mean (SD)	18.67 (±2.69)	18.54 ± (2.65)	18.79 ± (2.73)
Gender			
Male	49.0	48.4	49.5
Female	40.9	39.1	42.7
Nonbinary	4.1	5.6	2.7
Trans woman	0.7	0.9	0.5
Trans man	2.3	2.3	2.3
Gender fluid/ queer	1.1	1.4	0.9
Other	1.8	2.3	1.4
Race/ethnicity			
NH White	41.4	46.0	36.8
NH Black	24.6	22.8	26.4
NH Asian	13.1	11.2	15.0
Hispanic	14.3	14.9	13.6
Other/Multiracial	5.3	3.3	7.3
Prefer not to answer	1.4	1.9	0.9
Education			
High school			
6th grade	0.2	0	0.5
9th grade	3.2	1.9	4.5
10th grade	8.0	8.4	7.7
11th grade	12.9	13.0	12.7
12th grade	21.6	23.7	19.5
Graduated High School/GED	12.6	14.0	11.4
College	34.9	33.1	36.8
Other	6.4	6.0	6.8

Health literacy			
Low	15.2	15.8	14.5
High	84.8	84.9	85.4
Lifetime Nicotine vaping experience*			
Yes	49.4	48.3	51.6

*Note: 126 participants who didn't answer this optional question were coded as no nicotine vaping experience in their lifetime.

Informed Consent Comprehension

There was no significant difference in the overall comprehension score (range 0-11) between participants in the video consent group and those in the written consent group (8.84 vs. 8.62, *P*= .949). However, participants in the video consent group performed better than those in the written consent group on 5 individual measures of comprehension, including 1 item on the topic of the study, 2 potential risks, and 2 study procedures (Table 2). On the other hand, for 1 item on study procedure, the percentage of participants who correctly answered was significantly higher in the written consent group (Table 2).

Table 2: Percentage of participants in the short-form video consent group and written consent group that answered the comprehension questions correctly

Question	Video consent Correct answer (%)	Written consent Correct answer (%)	x^2	*P* value
1. What is the study about? (vaping of nicotine and/or cannabis)	100.0	98.2	3.95*	.047
2. True or False? If I choose to participate, I am required to remain in the study for the full 6 months (false)	85.6	84.5	0.09	.762
3. True or False? If I choose to participate, I must complete all of the study surveys (false)	80.0	80.9	0.06	.811
What are some of the possible risks associated with participating in this study? (Select all that apply)				
4. There are no risks associated with participating in this study (false)	81.4	74.1	3.35	.067
5. There is a small chance that my participation in this study can cause a loss of privacy (true)	59.1	49.5	3.97*	.046
6. Some of the questions may make me feel uncomfortable (true)	71.2	62.3	3.87*	.049
What will happen if you participate in the study? (Select all that apply)				
7. I will join a group to quit	89.8	79.5	8.72**	.003

vaping on Instagram (true)				
8. I will be randomly assigned to an Instagram group or a website to quit vaping (true)	52.6	58.2	4.95	.238
9. I will complete one survey every day during the study (false)	84.2	91.4	5.236*	.022
10. I will complete surveys now and at 1, 4 and 7 months (true)	93.3	90.5	4.95*	.026
11. I will be paid only if I quit vaping (false)	96.7	95.0	0.83	.361

Note: *p<.05; **p<.01.

Pre-specified Subgroup analyses. We further conducted subgroup analyses. Overall comprehension was checked within adolescents (aged 13-18) and young adults (aged 18-24), and there was no significant difference in overall comprehension. We also compared comprehension levels among participants who reported lifetime experience with vaping (N=215). Among participants with vaping experience, those in the video group had significantly higher percentage of correct answers for three items, “there are no risks associated with participating in this study”, “there is a small chance that my participation in this study can cause a loss of privacy,” “some of the questions may make me feel uncomfortable,” compared to participants in the written consent group with vaping experience.

Participants in both the video consent group and the written consent group reported high levels of satisfaction (Table 3). Combining the three measures of satisfaction, there was no significant difference in the overall satisfaction between the video consent group and written consent group (5.97 vs. 5,83, *P*=.652). However, on the single item, “How satisfied were you with the overall consent process?”, the video consent group scored significantly higher than the written consent group (5.80 vs. 5.47, *P*=.012). There was no significant difference in willingness to participate between the short-form video consent group and written consent group (4.21 vs. 4.24, *P*=.821). Both groups reported high willingness to participate in the hypothetical study described in the consent forms, with as score of 4.21 for the video consent group and 4.24 for the written consent group, indicating that they “were likely” or “very likely” to participate if they qualified for the study.

Table 3: Satisfaction score in the study by condition

Satisfaction	**Video Consent Mean (SD)**	**Written Consent Mean (SD)**	**T-test**	***P* value**
1. How satisfied were you with your ability to complete the consent process for this research study on your own without any staff? (scale 1 to 7)	6.09 (1.23)	6.14 (1.04)	0.40	.692
2. How satisfied were you with the time required to complete the consent process? (scale 1 to 7)	6.01 (1.33)	5.88 (1.28)	-1.02	.310
3. How satisfied were you with the overall consent process? (1 to 7)	5.80 (1.61)	5.47 (1.81)	-1.99*	.047

Overall Satisfaction (1 to 7)	5.97 (1.13)	5.83 (1.10)	-1.29	.199

Note: *p<.05

Discussion

This study is among the first to explore the effectiveness of using short-form consent videos that mimic popular social media videos compared to a standard written consent among adolescents and young adults. Our findings suggest that short-form informed consent videos have the potential to improve the informed consent process for young people. Specifically, our study showed that short-form informed consent video delivered information as well as standard written consent forms, and performed significantly better in several aspects of participant comprehension and satisfaction. Additionally, in terms of survey completion time, the short-form video consent group had a shorter average completion time compared to the written consent group. Participants who watched the short-form informed consent video had similar comprehension compared to the participants who read the written consent document. Participants in the short-formed video consent group answered 80% of the comprehension questions correctly indicating reasonable understanding of the consent information, similar to participants who read written consent documents (78%). This finding was consistent with a prior multimedia studies. One clinical study of lung disease which found that interactive videos led to equivalent comprehension and greater satisfaction among participants who saw a virtual multimedia informed consent compared to the participants who read the standard informed consent document [4,5]. Another clinical study examining the use of video consent in adolescents and adults in prison found that adult participants in the audiovisual groups had significantly better understanding than the those who read the paper consent document. In the adolescent group, there was no significant difference in the understanding and evaluation of the consent information [22]. Although these findings were consistent with our results, our study design and population differed. Both prior study videos were 4 minute animated slide shows with voice overs. In addition, our study focused only adolescents and young adults age 13-24.

While the shorter video showed equivalent comprehension to the written consent document, the short format is relatable and similar to what adolescents and young adults may regularly encounter on popular social media sites [9]. It is worth noting that the short form video in this study matched the topic of the hypothetical study (a social media vaping intervention study) and the study procedures were low risk and straightforward. Previous studies of video consent were for complex procedures such as in vitro fertilization or Mohs surgery, or high-risk situations, such as care in the intensive care unit, where longer and more detailed videos are likely necessary [5,8,19]. Our findings for short-form video are most likely to apply to low-risk behavioral studies among younger healthy volunteers.

While the overall measure of comprehension was no different between the two conditions, on five of the individual items participants in the short-form video consent group performed better than written consent participants. Participants in the short-form video consent group had better understanding of what the study was about generally, the risks associated with the study, and 2 measures of study procedures. On the other hand, participants in the written consent group had better understanding on one measure of study procedure. This differs from previous studies that found virtual multimedia informed consent had better understanding of use of their personal health information (PHI) and how to withdraw from the study, compared to their traditional paper consent counterparts [7, 17-18]. Our findings suggest that different formats may communicate different aspects of study information more effectively, and perhaps both video and written consent forms should be available to study participants.

In our study, on one question addressing randomization, “What will happen if you participate in the study? (Select all that apply),” we found participants in both groups had difficulties selecting the correct response, “I will be randomly assigned to an Instagram group or a website to quit vaping.” Approximately half of the participants in both groups selected the incorrect response. This finding suggests that some survey questions may be difficult for participants to understand regardless of the format of the consent process. This difficulty may also have been due to the phrasing of the question. Participants were asked to “select all that apply” from a list of statements, and there were two similar answer choices for this question: “I will join a group to quit vaping on Instagram,” and “I will be randomly assigned to an Instagram group or website to quit vaping.” The similarity between these two items might have led to fewer participants overall groups correctly selecting both than if each had been asked as a separate item. Pilot testing can serve as a valuable tool for identifying challenging questions and for exploring effective information delivery formats to ensure clear communication with participants.

The topic of our hypothetical study was a social media intervention for adolescents and young adults who may be interested in quitting vaping. Our subgroup analysis among participants with vaping experience found no overall difference in comprehension, although those who viewed the video consent had significantly better comprehension on three measures compared to the written consent form. This suggests that short form video would be acceptable for young people likely to qualify for the study.

Participants who viewed the short-form informed consent video were more satisfied with the overall consent process. This may be because the consent video was more relatable and engaging. The speaker in the video was young and similar to the age of participants, and used different vocal tone modulations to capture attention. In addition, the video was less than 2 minutes long and had a 9:16 format, compatible for mobile phones. The higher satisfaction is consistent with other studies that found multimedia delivery consent form to lead to higher satisfaction in participants [7, 19-20]. Although self-reported satisfaction with the time required to consent was not significantly different, participants who viewed the short-form informed consent video had a faster average survey completion time. Higher overall satisfaction might be related to either increased time efficiency or a subjective sense of ease in the process. Future studies might ask about this sense of ease.

Limitations

Our study has limitations. First, the respondents were aware they were taking part in a research study to rate different delivery methods of consent information, which may have led to social desirability bias. Second, our study’s survey environment differed from the real-world environment in which people read an informed consent without comprehension tests. Participants may have paid increased attention to the consent content in order to correctly answer comprehension questions, which may be less likely to happen in real situations. Third, most of the participants in our research study were in high school with 85% self-reporting high health literacy, thus findings may not generalize to those with low health literacy. Video consent has potential to improve comprehension for individuals with low-literacy, and future studies should be conducted with low literacy participants. Lastly, this study focused on short-form video consent for a low-risk behavioral study in English-speaking young adults and adolescents. Future research could test the shorter-form video consent with different types of studies and with older or non-English speaking people.

Conclusion

Our findings suggest that short-formed video consent for low-risk behavioral studies is faster and has similar comprehension and superior satisfaction compared to standard written informed consent among adolescents and young adults, so is an acceptable alternative to written forms. Short-formed

video consent may make the research enrollment process more acceptable for this priority population. This study contributes to a growing body of evidence in support of consent videos. Researchers should continue to explore creative consent formats that match their participants needs.

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Supplementary Files

Figures

Short-form video consent screen shots showing eye contact, gestures, and facial expression. QR code links to the short-form video consent.

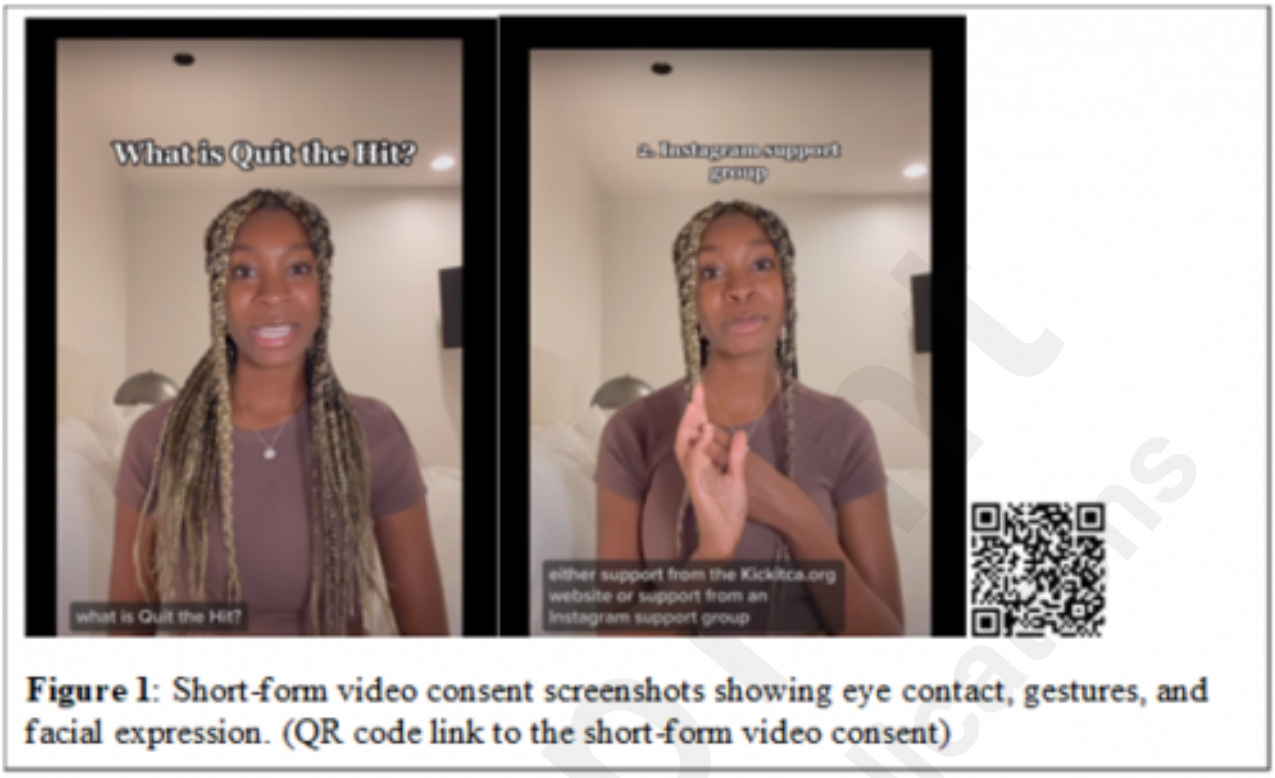

Figure 1: Short-form video consent screenshots showing eye contact, gestures, and facial expression. (QR code link to the short-form video consent)