Addressing COVID-19 Vaccine Hesitancy Among Korean Americans Via Digital

Storytelling: Lessons Borrowed from Vaccine Uptake Research

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Abstract

Background: The COVID-19 pandemic has been causing high rates of hospitalization and death among the marginalized Asian American Pacific Islander (AAPI) community. Disaggregated data revealed low COVID-19 vaccine uptake among Korean Americans/Immigrants (KA/I) due to vaccine-related fears unaddressed by cultural and linguistic barriers. Prior evidence demonstrates that digital storytelling (DST) is an effective medium to improve recommended vaccine intent and uptake among AAPIs. **Objective:** This DNP project aimed to assess the effect of DST intervention on improving KA/I's COVID-19-related vaccine hesitancy, intent, and uptake. **Methods:** A quasi-experimental design was conducted, with participants (n=4) self-identifying as KA/I adults with English or Korean fluency residing in the U.S. Participants were recruited online via convenience sampling from CARE (Collaborative Approach for AAPI Research and Education). Individuals who had already received COVID-19 vaccines were excluded. The intervention included two first-person audiovisual stories documenting the personal experience of receiving the COVID-19 vaccine. Outcomes were measured via a pre-post-1-month-follow-up survey utilizing a modified Vaccine Hesitancy Scale ($\alpha = 0.72$) and Narrative Quality Assessment Tool ($\alpha = 0.78$-0.81). **Results:** DST intervention had a marginally significant effect on lowering post-COVID-19 vaccine hesitancy scores ($p = 0.068$). Participants (n=2) who rated the DST videos with a higher score indicated vaccine uptake at one-month follow-up. **Conclusion:** This cost-effective, sustainable, and scalable DST evidence-based project has the potential to promote COVID-19 vaccination among KA/I and other AAPI groups with appropriate modification.

Keywords: COVID-19, Korean Americans, digital storytelling, vaccine hesitancy, vaccine uptake

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Addressing COVID-19 Vaccine Hesitancy Among Korean Americans Via Digital

Storytelling: Lessons Borrowed from Vaccine Uptake Research

Coronavirus Disease 2019 (COVID-19) is a highly infectious viral respiratory illness (World Health Organization [WHO], n.d.) that continues to significantly increase morbidity and mortality rates across the world (WHO, 2020). While there are limited therapeutic treatments for COVID-19 (National Institutes of Health, 2021), successful disease mitigation includes the use of face masks, social distancing, and vaccination uptake among all communities (Schoch-Spana et al., 2020). However, racial/ethnic healthcare disparities such as language and cultural barriers may limit vaccine uptake among minorities (Vergara et al., 2021). To combat vaccine hesitancy, this project explores how culturally and linguistically tailored education may bridge the gap in COVID-19 vaccination uptake among Asian American Pacific Islanders (AAPI), specifically Korean Americans/Immigrants (KA/I).

Problem Statement

Individuals infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) can exhibit mild to life-threatening symptoms (Centers for Disease Control and Prevention [CDC], 2022f). As of April 2022, there were approximately 505 million COVID-19 cases and 6.21 million deaths globally (WHO, 2022). Within the United States, there were more than 80.6 million COVID-19 cases and close to 987,000 deaths in the U.S. (CDC, 2022a). These rampant COVID-19 outbreaks have significantly strained critical care staffing and hospital bed capacities, forcing some healthcare providers (HCP) to triage care and withdraw patients from life support (Robert et al., 2020).

Disaggregated data shows that AAPIs have been disproportionately affected by COVID-19 (Wang et al., 2020). Some contributing factors include multiple health co-morbidities, poor

access to healthcare, and financial/health insurance limitations (Wang et al., 2020). According to Mein et al. (2020), racial/ethnic minorities are significantly more vulnerable to complications associated with COVID-19.

Purpose and Rationale

Widespread COVID-19 vaccine uptake is needed to return to normalcy (Schoch-Spana et al., 2020). The Advisory Committee on Immunization Practices (ACIP) has pushed efforts to distribute the COVID-19 vaccine ethically and equitably (McClung et al., 2020). Also, ACIP has strongly recommended accessible vaccine resources for at-risk populations (McClung et al., 2020). However, there have been limited culturally and linguistically tailored health resources on the COVID-19 vaccine for those groups, including AAPIs (Wong et al., 2022).

The American Community Survey shows that approximately a quarter of AAPIs (about 4.6 million) speak English "less than well" (US Census Bureau, 2019a; 2019b). Other studies demonstrate that low English proficiency remains a significant barrier to promoting recommended vaccinations among the AAPI population (Lee et al., 2016; Wong et al., 2022). To date, limited published research shows effective ways to reduce COVID-19 vaccine hesitancy among the at-risk group. Alternatively, prior research demonstrating successful vaccine uptake strategies may apply to vaccine-hesitant populations during a global pandemic. Therefore, this project aims to assess how culturally and linguistically tailored education may promote health equity and improve COVID-19 vaccine hesitancy, intent, and uptake among AAPIs, specifically KA/Is.

Background/Significance

Most population data analyses categorize AAPIs as one homogenous group. However, the "Asian" population consists of diverse and distinct ethnicities, cultures, languages, and

countries of origin (Hoeffel et al., 2012; Srivastav et al., 2018). According to the National

Alliance on Mental Illness (n.d.), AAPIs represent approximately 50 different ethnicities and 100

different languages. Due to these distinct differences, each ethnic group may have varying

socioeconomic and health needs than other AAPI subgroups.

Unvaccinated Asian American Pacific Islanders

In contrast to the aggregated data in published national surveys, some studies show that

different subgroups of Asian American populations have varying vaccine uptakes (Daniels et al.,

2010). Moreover, Asian Americans are falsely perceived as meeting the national target goals due

to misreported vaccination data (Daniels et al., 2010). Further, some Asian subgroups, Native

Hawaiians and South Asians, are automatically categorized as "other race," which further

misrepresents data (Srivastav et al., 2018). For instance, Srivastav et al.'s (2018) study showed

that although Asian Americans had an overall high rate of influenza vaccine uptake,

disaggregated statistics showed that Korean and Chinese Americans had five to six percent less

uptake compared to non-Hispanic whites. Park et al.'s (2021) study revealed key reasons some

AAPIs are not currently COVID-19 vaccinated. Among the 1,649 participants, 36.4% had

multiple concerns, including vaccine safety (i.e., efficacy, distrust in government, speed of

vaccine production) and side effects (Park et al., 2021). Further, the findings revealed that KA/Is

were one of the AAPI subgroups with the most significant COVID-19 vaccine concerns. Among

337 KA/I participants surveyed, 38.8% felt the vaccine was unsafe, and 63.2% were concerned

about the side effects (Park et al., 2021). Moreover, H. Y. Lee et al. (2018) and Srivastav et al.

(2018) reported language and cultural barriers as leading causes of low vaccine uptake among

some AAPI subgroups.

Culturally and Linguistically Tailored Education

The Biden Administration has funded more than six billion dollars (US Department of Health & Human Services [HHS], 2021a) to the CDC and Health Resources and Services Administration (HRSA) to promote equitable community-based COVID-19 testing, treatment, and vaccination among marginalized populations (HHS, 2021b). A culturally and linguistically tailored intervention can increase COVID-19 vaccination intent to reach those populations. Various studies have shown the positive benefits of utilizing culturally tailored education such as digital storytelling to improve human papillomavirus (HPV) vaccinations (Chen et al., 2019, 2022; Kim et al., 2020). A culturally tailored text messaging system is also a cost-effective approach that has shown to improve uptake of health recommendations such as HPV vaccine initiation (H. Lee et al., 2018; H. Y. Lee et al., 2015; Y. M. Lee et al., 2019), breast cancer screening (Lee et al., 2017), and smoking cessation (Whittaker et al., 2019). Some of these interventions (Chen et al., 2019; H. Y. Lee et al., 2019) were conducted in the participants' native language as most participants had poor English proficiency.

Standard Messaging

Governmental and health organizations have attempted to provide translations of COVID-19 facts and resources in Asian languages (Association of Asian Pacific Community Health Organizations [AAPCHO], 2021; CDC, 2022d). However, most online written health resources are graded as "difficult to read," which disadvantages those with limited health literacies (Mishra & Dexter, 2020). Problematically, most KA/Is are first-generation immigrants, and literature suggests that most KA/I participants have low health literacy rates (Chae et al., 2021). Further, prior studies demonstrate that culturally tailored education increased vaccine uptake more successfully than standard written health information (Kim et al., 2020; Lee et al., 2016, 2017).

COVID-19 Vaccine Initiation

Currently, there are three CDC (2022c) recommended and authorized vaccines in the U.S., namely- Pfizer-BioNTech, Moderna, and Johnson & Johnson's Janssen. The Pfizer-BioNTech and Moderna vaccines require two doses approximately three or four weeks apart (CDC, 2022e). Clinical trials have shown that when individuals complete the series of COVID-19 vaccinations, there is 94-95% efficacy against symptomatic disease (Olliaro, 2021). About 50 to 80% of the population needs to be vaccinated to reach herd immunity (Erzurum, 2021; Randolph & Barreiro, 2020). Because there is limited intervention-based research to promote COVID-19 vaccine initiation among the AAPI community, lessons will be borrowed from other vaccine initiatives that have been successful in improving vaccine intent and uptake (Chen et al., 2019, 2022; Kim et al., 2020; H. Y. Lee et al., 2019).

Internal Data

Some Korean communities within the Tri-state area of the U.S. have struggled to sign up for the COVID-19 vaccine and have their questions answered (Alvarado, 2021). A bilingual receptionist who works for the COVID-19 hotline states that he receives hundreds of calls per day from Korean Americans because those residents have limited English proficiency and do not know where to obtain COVID-19 vaccine information and resources (Alvarado, 2021). Further, Wang (2021) also reports that Southeast Asians in Minnesota are less likely to receive COVID-19 vaccines because of language barriers. A survey from Asian and Pacific Islander community partners shows that 90% of the organizations need translated and culturally tailored COVID-19 resources (Asian and Pacific Islander Health Forum [APIAHF], 2020). This inquiry has led to the clinically relevant PICOT question, "In unvaccinated Asian Americans (P), how does

culturally-tailored education (I), compared to standard messaging (C), affect COVID-19 vaccine initiation (O)?"

Search Strategy

To address the PICO question, a thorough search of the literature was conducted through the databases – PubMed, Cumulative Index of Nursing and Allied Health Literature (CINAHL), and Scopus. Due to the novel nature of COVID-19, there were limited search yields based on keywords associated with the PICO question. Grey literature search was also conducted with zero results. After multiple attempts, the keywords were modified to examine which cultural interventions can increase the uptake of all or any nationally recommended vaccinations among Asian Americans. Such immunizations included HPV, hepatitis, and influenza vaccines. MeSH terms and Boolean connectors were applied to all searches. Filters included searches in the last five years, English and primary language, and full-text availability.

Keyword Selection

The initial keywords: *Asian American, cultural education, education, intervention,* and *COVID-19 vaccine,* yielded two results on PubMed, zero results on CINAHL, and two results on Scopus. The population was expanded to include *Asian, Korean American, Chinese American*, and *Vietnamese American.* The intervention was expanded to include *promotion,* and *messaging.* Because *COVID-19, coronavirus, sars-cov-2*, narrowed the search results significantly, those phrases were not included. The outcome included general terms such as *vaccination,* and *immunization.*

Search Yield

PubMed resulted in 229 results, CINAHL resulted in 86 results, and SCOPUS resulted in 114 results. All titles and abstracts were carefully reviewed, then selected if the search focused

on an intervention to increase vaccine uptake among Asian Americans. Ten articles were selected for rapid critical appraisals (RCA; Melnyk & Fineout-Overholt, 2019). These included one systematic review, two pilot quantitative studies, three surveys with quantitative analyses, and four qualitative studies (Appendix A, Table A1 and A2).

Critical Appraisal & Synthesis

Ten studies (Chen et al., 2019; Frew et al., 2014; Hopfer et al., 2017; M. Kim et al., 2017, 2020; H. Y. Lee et al., 2019; Y. M. Lee et al., 2019; Shon & Wells, 2020; Srivastav et al., 2018; Vu et al., 2020) were selected and graded for their quality and level of evidence (LOE) through Melnyk and Fineout-Overholt's (2019) RCA tool. While systematic reviews and quantitative randomized-controlled trials (RCTs) would yield a more robust quality and LOE, no published studies focused on exploring culturally tailored interventions to improve COVID-19 vaccine uptake among the AAPI community. Alternatively, the search strategy was broadly changed to include studies exploring all vaccine improvement initiatives/strategies among Korean, Chinese, and Vietnamese Americans. Qualitative analyses (see Appendix A, Table A1) provided rich, in-depth statements from AAPIs on their vaccine attitudes, beliefs, knowledge, intention, and initiation. Some of the quantitative studies (see Appendix A, Table A2) provided insight into AAPI's vaccine perception and included culturally tailored intervention studies that could be applied to promote COVID-19 vaccine uptake. The ten studies were synthesized into a table (see Appendix A, Table A3) to understand which cultural factors affect the intent to vaccinate and, ultimately, vaccine uptake.

On average, the participants in the study were 32.8 years old. They identified their ethnicities as either Korean, Vietnamese, or Chinese. Many participants immigrated to the U.S., and most were not fluent in English. All studies were conducted in the U.S., mainly in the

community setting. Among the ten articles selected through the RCA tool, only two studies were intervention-based (Chen et al., 2019; Kim et al., 2020). Both studies utilized narrative storytelling to provide culturally relevant information regarding the HPV vaccine. The pre-and-post-test assessed HPV vaccine knowledge, attitude, beliefs, and intent differences. Kim et al. (2020) intervention was conducted via mobile, web-based technology and included a "Learn More" segment in which a Korean American physician recommends the HPV vaccine. Overall, both studies significantly improved HPV vaccine knowledge, attitude, belief, and intent.

Theory Application

The Model of Culture-centric Narratives in Health Promotion is fitting for this DNP project (Larkey & Hetch, 2010; see Appendix B, Figure 1B). This theoretical framework defines how attitude, beliefs, and behaviors can be modified through the interplay of personal/socio-cultural characteristics and narrative traits. *Narrative* is a form of realistic storytelling that communicates a message through characters and events in which the listener/viewer can culturally self-identify (Larkey & Hetch, 2010). Larkey and Hetch (2010) define *culture* as a community of members who not only communicate with one another but also have a collective set of beliefs, values, and laws. This theory postulates that narratives influence the viewer/listener to establish a sense of self and identity based on how they connect and interpret the story. Then, their personal connection to the narrative is shared with others in their community. For a narrative story to be personally engaging, the characters should be "realistic," "likeable," "homophily (like self)," and "generates empathy" (p. 122). The story should be able to capture the attention of the audience through its storyline. For a story to be socio-culturally engaging, it should include "culturally familiar/similar characters," "cultural events," and "culturally relevant language" (p. 122).

There are key *mediators* in storytelling that predict whether the viewer/listener's response to the characters will result in attitude, belief, and behavioral change (Larkey & Hetch, 2010). The three mediators are defined as *transportation*, *identification*, and *social proliferation*. *Transportation* is defined as the story's ability to fully capture its audience's attention and emotional reaction. *Identification* is defined as the ability of the viewer/listener to identify and relate him or herself to the character personally. *Social proliferation* is defined as the act of sharing and re-telling the story with other members via word of mouth or through social media platforms. Through this act of sharing, community members can discuss and support one another in carrying out the intended behavior.

Digital storytelling (DST) is defined as a form of narrative storytelling using technology to incorporate the storyline narrated by the participant with images and music. Chen et al.'s (2019, 2022) studies show that DST intervention increased Vietnamese mothers' intent to vaccinate their adolescent children against HPV. Secondly, AAPI immigrants may be less susceptible to behavioral change if the vaccination programs are only geared towards the general English-speaking population. To resolve this matter, educational information that is culturally, linguistically, and personally relevant to AAPIs may increase their intent to receive the COVID-19 vaccine.

Implementation Framework

This DNP project was planned, developed, implemented, and evaluated through Stetler's Model of Evidence-Based Practice (2009; see Appendix B, Figure B2). The Stetler's Model (2009) provides a detailed how-to guide on developing evidence-based processes and practice change to address a problem proposed by a project site (Schaffer et al., 2013). Given the imminent need to resolve the barriers associated with COVID-19 vaccine uptake, an

implementation framework that considers timeliness was needed. Concerningly, the time that it

takes for research to be translated into clinical practice can take up to 17 years (Morris et al.,

2011).

The Stetler's Model (2009) outlines six key steps: (1) *Preparation*, (2) *Validation*, (3)

Comparative evaluation/decision making, (4) *Translation/application*, and (5) *Evaluation*.

During the *preparation* phase, the problem of a lack of culturally tailored education for the

COVID-19 vaccine among the AAPI community was identified by the author and project site

and deemed as a high priority issue. Internal data and supplemental evidence showed that

organizations were having a challenging time meeting the needs of the AAPI community. In the

validation and *evaluation/decision making* phase, a thorough literature search was conducted,

critiqued, critically appraised, and synthesized to assess if there was substantial evidence for

utilizing digital storytelling as a form of culturally tailored education. Given the urgency and

need for a culturally tailored intervention, the project moved on to the next phases of

translation/application and *evaluation*, which will be discussed in the next sections.

Methods and Design

Ethical Considerations

To ensure the rights of the participants were protected, an Institutional Review Board

(IRB) was obtained from Arizona State University. The submitted documents to IRB detail that

no personal identifiers (e.g., name, social security number, phone, and address) were collected to

protect the confidentiality of the participants. Valid email addresses were used to send the pre-

post-1-month-follow-up survey, interventions, and incentive payments. Notably, the email

addresses were separated from the survey data, and all data were de-identified. The DNP project

was conducted on Arizona State University's (ASU) Research Electronic Data Capture site

(REDCap; Harris et al., 2009). The REDCap site is a secure HIPAA-compliant database that maintains strong web security through routine monitoring by a centralized technical support team, an encrypted server, multilevel password protection, antivirus barriers, and an enterprise-level firewall. Prior to the intervention, the participants had to sign a consent that included information about the study, including associated risks, benefits, the confidentiality of all responses, what they should anticipate, and their right to refuse to consent and leave the study at any time.

Population and Setting

This project aimed to recruit 20 participants from the University of California San Francisco's (UCSF; n.d.) Collaborative Approach for Asian Americans and Pacific Islanders Research and Education (CARE) Registry. To aid in AAPI health data disaggregation, the CARE Registry allows researchers to access a vast source of U.S. residing AAPI adults with fluency in English, Mandarin, Cantonese, Korean, Samoan, Vietnamese, or Hindi willing to take health-related online surveys (UCSF, n.d.). For this DNP project, the inclusion criteria for the participants included: (1) self-identification as a Korean/Korean American/Korean immigrant, (2) fluency in English or Korean, (3) currently residing in the U.S., and (4) 18 years of age or older. Exclusion criteria included those who have already received any COVID-19 vaccine dose and those who did not meet the inclusion criteria. All study activities, including screening, consenting, intervention (videos) implementation, and assessments, were conducted online via ASU's REDCap site.

Project Description and Timeline

Time 0 Pre-Intervention

Three phases organized this project. Before the intervention, an email invitation was sent to the CARE registry participants, which briefly outlined the project's objective, eligibility requirements, investigators' contact information, and quantity/type of incentive. A unique REDCap weblink was provided in the email for those interested in participating in this project. Based on what the participants listed as their preferred language (under their CARE registry profile), they were sent either an English or Korean survey (see Appendix D, Figure D1, Figure D2). The first section of the survey included three brief screening questions (see Appendix D, Figure D3). Eligible participants were led to an online consent form. Those willing to participate had to click "agree," and they were directed to an online pre-survey. The pre-survey included questions on sociodemographics, COVID-19 vaccine attitudes/beliefs (Rodriguez et al., 2021), and COVID-19-vaccine intent and reason (Chen et al., 2021). Survey instrument details will be discussed in the next section. The Time 0 Pre-Intervention phase took approximately 10 to 15 minutes to complete.

Time 0 Intervention

During the intervention phase, the participants were able to play two first-person audiovisual stories that documented personal experiences about the COVID-19. These videos were selected from YouTube (Choi, 2021; Rheem, 2021), and email permission was obtained from the two video creators to use these stories for this project. Story 1 is narrated in Korean by Dr. Rheem, a KA male internal medicine physician, and English subtitles are provided. Story 2 is narrated in English by Dr. Choi, a KA female dentist, and Korean subtitles are provided. Permission was also obtained to shorten the length of the videos so that the most salient parts were included. The final edited videos are approximately 10 minutes long in combined length, and the links are as follows: (1) https://youtu.be/rsfrL_PZpNg and (2)

https://youtu.be/B1MkZpMMERY. All videos included subtitles with validated translations in English and Korean.

Time 1 Post-Intervention

After the participants watched the videos, they were prompted to complete a post-test which took approximately 10 to 15 minutes. The post-test included the same questions on COVID-19 vaccine attitude/beliefs (Rodriguez et al., 2021), COVID-19 vaccine intent (Chen et al., 2021), as well as questions that assessed the quality of the video interventions (W. S. Kim et al., 2017). Once the participants completed the pre-test and post-test, they received a $10 Amazon gift card via email.

Time 2 One-Month Post-Intervention

A follow-up email that included a REDCap weblink was sent one-month post-intervention to participants who completed the project's *time 0* through *time 1* phases. The follow-up survey asked questions regarding COVID-19 vaccine intent or uptake. This phase took approximately one to two minutes to complete, and upon completion, participants received another $5 Amazon gift card sent to their provided email.

Instrumentation

The pre-test survey began with sociodemographic questions intended to assess the participants' age, gender, immigration/acculturation status, preferred language, financial situation, and health insurance (see Appendix D, Figure D4). Next, a 17-item COVID-19 Vaccine Hesitancy Scale (VHS) was adapted from Rodriguez et al.'s (2021) study with email permission granted for this project's use (see Appendix D, Figure D5). This scale assessed factors associated with COVID-19 vaccine hesitancy, including perceived vaccine risks and vaccine confidence levels for those diagnosed with Human Immunodeficiency Virus (HIV;

Rodriguez et al., 2021). The first 10 VHS questions were based on a 5-point Likert scale, ranging from 1 (strongly agree) to 5 (strongly disagree). A higher score represents greater COVID-19 vaccine hesitancy. Inverted scores were applied to VHS questions 8-10. The VHS questions 11-17 were yes and no questions to further assess general COVID-19 vaccine attitudes. These questionnaire items have been tested for construct validity through exploratory factor analysis and achieved an acceptable level of reliability (α=0.72; Rodriguez et al., 2021). However, this survey has not been tested on Korean men and women without HIV. The pre-test concluded with a 2-item COVID-19 vaccine intent question adapted from Chen et al. (2021). The answer choices included were "yes," "maybe," and "no." Based on the answer choice, the participants were asked to provide the reason for their answer selection with "select all that apply" options (see Appendix D, Figure D6).

The post-survey included the same questions as the pre-survey except for questions on sociodemographics. The post-survey consisted of 15 questions from W. S. Kim et al.'s (2017) Narrative Quality Assessment Tool (based on the Model of Culture-centric Narratives in Health Promotion; see Appendix D, Figure D7). Email permission was obtained to use this instrument. The first 12 narrative assessment tool questions were based on a 5-point Likert scale, ranging from a score of 1 (disagree a lot) to 5 (agree a lot). The higher score represents positive attitudes, identification, captivation, and recommendation of the video stories. The narrative questions 13 and 14 included "yes" and "no" responses to assess whether the participants would recommend the videos to their family and friends. The last question asked which story the participants preferred with the following choices- "Story 1," "Story 2," or "Both." When tested on Vietnamese mothers, this instrument showed high-reliability levels (α = 0.78-0.81; Chen et al., 2022).

The 1-month follow-up survey included a 6-item question adapted from Chen et al. (2021), which assessed the participants' intent to receive the COVID-19 vaccine (see Appendix D, Figure D8). For those participants who received the vaccine, the questions asked them to specify vaccine type, dose, and side effects. Participants who did not receive the vaccine were directed to a question that asked for their vaccine intent and for them to specify their reason as "select all that apply" options. All of the survey questions were translated to Korean and then back-translated. For documentation, the translators completed a university translation certification (ASU, n.d.).

Data Collection and Data Analysis

Once data collection was complete, the International Business Machine's Statistical Package for the Social Sciences (Version 28; IBM Corp, 2021) program was used to conduct univariate, bivariate statistics, and non-parametric testing. Univariate statistics described the sample, mean, and distributions of study variables. Next, bivariate statistics examined patterns of change in DST narrative scores and vaccine uptake. Last, the Wilcoxon Signed Ranks Test assessed the effect of DST on pre-and-post-VHS mean scores.

Budget and Funding

The projected cost for this project was approximately $300. The calculated cost was for compensating recruited participants who had completed the pre-test, post-test, and 1-month follow-up survey. Outside funding was sought through ASU's Graduate and Professional Student Association (n.d.). However, the grant was denied, and the budget was sourced from the coinvestigator's private fund. The incentive amount was considered appropriate for the participants' time and efforts.

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Project Results/Outcomes

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Of the 299 CARE registry KA/Is who were invited to the project via convenience sampling, there were 25 initial responses. Of the 25 respondents, 19 were excluded because they had already received a COVID-19 vaccine. While six participants completed the pre-post-survey and intervention, two were further excluded due to no variability in post-survey answers, likely indicating that the responses were invalid.

Descriptive Data

A total of four KA/I participants (n = 4) met the inclusion criteria and completed the *time 0* through *time 1* phases of the project with valid response patterns. Their ages ranged from 39 to 65 years (*M = 47.8, SD = 11.70*). Two participants were females (50%), and all participants were born in Korea (100%). Fifty percent of the participants indicated English as the preferred language, whereas the other half indicated Korean as the preferred language. Among the participants who were fluent in English (50%), they immigrated to the US 19 to 25 years ago, whereas the participants who preferred to speak Korean (50%) immigrated to the US 13 years prior to this study. All participants (100%) indicated they had a graduate degree.

Data Results

COVID-19 Vaccine Hesitancy Scale

Based on Rodriguez et al.'s (2021) COVID-19 VHS, the mean scores prior to DST intervention was 2.80 (*SD = 0.59, Min = 2.20, Max = 3.60*). The mean scores post-DST intervention was 2.25 (*SD = 0.58, Min = 1.60, Max = 3.00*). The Wilcoxon Signed Ranks test was calculated to assess for changes in VHS scores pre-and-post-DST intervention. DST intervention had a marginally significant effect on lowering pre-post-COVID-19 vaccine hesitancy scores (*pretest Mdn = 2.70; posttest Mdn = 2.15; z = -1.83; p = 0.068*).

COVID-19 Vaccine Intent and Uptake

After the DST intervention, half the participants (n = 2, 50%) responded "maybe" for vaccine intent, one participant (25%) responded "no," and the other (25%) responded "yes" for vaccine intent. Among the participants who responded "maybe," their vaccine concerns included "I do not trust vaccines" and "egg allergy." For the participant who responded "no" to vaccine intent, his vaccine concerns included "I do not trust vaccines," "Vaccines can cause health problems such as Autism," "I do not need it because I do not see any risk of getting infected," "I am morally opposed to vaccines," and "Companies develop vaccines to make money." For the participant who responded "yes" to vaccine intent, he indicated, "It will protect me from COVID-19." Two participants (50%) completed the 1-month follow-up survey. One participant indicated that she received the Pfizer vaccine with no side effects. The other participant reported that she received the Moderna vaccine and reported headache as a side effect.

Digital Storytelling Narrative Assessment

Participants (n = 2) who rated the narratives with a higher score were the ones who reported COVID-19 vaccine uptake. Between the two participants who reported COVID-19 vaccine uptake, they had a mean score of 4.25 (SD = 1.06) for narrative identification, a mean score of 3.00 (SD = 0.47) for narrative transportation, and a mean score of 5.00 (SD = 0.00) for the narrative recommendation. One participant preferred story 2, while the other participant preferred both stories.

In comparison, the participants who did not report COVID-19 vaccine uptake had a mean score of 3.08 (SD = 0.12) for narrative identification, a mean score of 2.67 (SD = 0.47) for narrative transportation, and a mean score of 2.50 (SD = 3.53) for the narrative recommendation. In the post-survey, one of the participants stated that he intended to get the vaccine; however, he did not respond to the 1-month follow-up survey. The participant who indicated he did not intend

to get the COVID-19 vaccine pre-and-post-intervention reported "no" to recommending the stories to others; he preferred neither story.

Project Sustainability

This DNP project supports financial sustainability. The DST videos are cost-effective interventions that can be disseminated to any person and organization and repeatedly watched via mobile or computer device with an internet connection. This eco-friendly project does not require additional materials such as paper and ink. The videos already include translated subtitles and shareable web links. For these videos to gain awareness and views among the KA/I community, the results can be shared with key AAPI organizations, including APIAHF (2020) and Association of Asian Pacific Community Health Organizations (AAPCHO; 2021). The videos should also be shared with KA/I community leaders, including churches, which serve as a popular hub for health information (Kim et al., 2015). Next, the findings may be disseminated via peer-reviewed journals (e.g., Nurse Practitioner) and conferences to clinicians, educators, and researchers who work with KA/I patients.

Discussion

This project's findings show that DST may be an effective culturally and linguistically tailored intervention to improve COVID-19 vaccine hesitancy among the KA/I community. Participants who rated the DST with a higher score were the ones who received the COVID-19 vaccine. Among the participants who received the vaccine, they indicated that they would recommend the DST videos to others. Additionally, both participants indicated that the vaccine would protect them from COVID-19 as a reason for vaccine uptake. This finding reveals a change in attitude towards the COVID-19 vaccine as they initially indicated a lack of trust in the vaccine or concern of side effects. Further, the findings from this project are consistent with

previous studies (Chen et al., 2019, 2022) that showed changes in vaccine attitude/beliefs post-DST intervention. While no definitive claims can be made due to the small sample size, a marginally significant reduction in vaccine hesitancy score post-DST intervention ($p = 0.068$) suggests the potential of using DST intervention to promote COVID-19 vaccine uptake in the target population (see Appendix D, Figure D9). Future rigorous research with a powered sample is needed to understand the effect of this intervention

Project Impact/Clinical Significance

The novel findings of this DNP project address the national threat of vaccine hesitancy during the midst of an ongoing COVID-19 pandemic. A literature review revealed limited intervention-based research promoting culturally and linguistically tailored education on the COVID-19 vaccine for the AAPI community. By applying lessons from prior research that improved the intent of other recommended vaccines among AAPIs (Chen et al., 2019, 2022; H. Y. Lee et al., 2019; Kim et al., 2020), this innovative DNP project demonstrates that DST may be a feasible solution for improving COVID-19 vaccine hesitancy among the KA/I community.

In clinical practice, HCPs can easily share these DST videos as a web link to unvaccinated KA/I patients, as long as a device is accessible with a Wi-Fi connection. According to Bender et al. (2014), Koreans were more likely to own a mobile device and computer than Caucasian, Filipino, and Latino American subgroups. HCPs can ask KA/I patients to watch these videos before or after their medical appointments. Further, the benefit of these DST videos featuring two HCPs may influence KA/I vaccine decisions. According to Chen et al. (2017) and Rambout et al. (2014), vaccine recommendations by HCPs significantly influence vaccine uptake decisions.

In non-clinical settings, these DST videos can serve as an informational resource for AAPI organizations, community centers, and vaccine centers to share with the KA/I community. The benefit of this intervention is that the DST videos contain a shareable web link and can be watched unlimited times. Accordingly, KA/Is may feel empowered to disseminate these videos with their family and friends. Further, this project addresses AAPI health inequities and provides disaggregated data on COVID-19 vaccine hesitancy among KA/Is.

Limitations

There were several limitations in this DNP project. First, no definitive conclusions can be drawn from the findings because of the small sample size. This project only recruited participants from one source, which may limit the generalizability of the findings. Among the participants who had initially completed the *time 0* and *time 1* phases of the project, only half responded to the 1-month follow-up survey. The 1-month follow-up survey was essential for the data collection to understand whether DST affected COVID-19 vaccine uptake. While ASU (2008) allows reasonable financial incentives for research participants, some participants may have randomly answered the surveys to receive the incentive. Consequently, two participants were excluded because there was no variability in post-survey answers and the post-survey answers contradicted their responses in the pre-survey.

There were also limitations noted within the data collection instruments. First, Rodriguez et al.'s (2021) COVID-19 VHS was intended for the English-speaking population with HIV. While the participant demographics from this DNP project differ, there were no other COVID-19 specific VHS instruments with adequate reliability, internal consistency, and construct validity (Rodriguez et al., 2021). Second, construct validity and reliability for the Narrative Quality Assessment Tool have been tested in different populations (i.e., Latinos in W. S. Kim et al.,

2017) and Vietnamese American/immigrant mothers in Chen et al. (2022). However, those studies did not include KA/I participants.

Future Research/Recommendation

Future studies can consider adding a larger sample size to elucidate the findings of this project. More participants can be recruited through other online platforms such as Amazon Mechanical Turk (n.d.), frequently visited Korean community websites like Hey!Korean (n.d.), and popular Korean chat rooms such as Kakao messenger (Google Play, n.d.). Also, partnering with organizational leaders is beneficial as those leaders can advocate for the project and garner support from their community members.

Secondly, future research can assess whether DST can improve COVID-19 vaccine booster hesitancy among KA/Is. According to recent data, only 60.4% of Asian Americans received the vaccine booster (CDC, 2022c). Currently, CDC (2022b) recommends three doses of the Pfizer-BioNTech or Moderna vaccines to restore immunity against COVID-19 infection. A new video that addresses COVID-19 vaccine boosters by a KA/I character can be selected and modified. Alternatively, KA healthcare providers can be invited to record a video on their COVID-19 booster experience and why they would recommend the vaccine to others.

Next, modifications can be made to this existing project to improve COVID-19 vaccine uptake among other vaccine-hesitant AAPI subgroups. According to Park et al.'s (2021) study, Filipinos were another subgroup with high COVID-19 vaccine hesitancy. Perhaps, a DST video that features a Filipino character can be filmed, or a pre-existing video can be selected to address COVID-19 vaccine hesitancy among the Filipino subgroup.

Conclusions

Many socio-cultural barriers limit AAPIs from receiving recommended vaccinations. More than ever, COVID-19 vaccines are needed to reach vulnerable communities such as KA/Is. KA/Is are at higher risk for complications, and they tend to have higher COVID-19 vaccine hesitancy unaddressed by cultural and language barriers. DST intervention is cost-effective, sustainable, and scalable and has the potential to address vaccine hesitancy in vulnerable populations, including KA/Is. After all, the benefits of receiving the COVID-19 vaccine far outweigh the risks.

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Appendix A

Evaluation and Synthesis Tables

Table A1

Evaluation of Qualitative Studies

Citation	Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Variables Studied and Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/Quality of Evidence; Decision for practice/ application to practice/ Generalization
Y. M. Lee et al. (2019). Development of a mobile health intervention to promote Pap tests and HPV in an underserved immigrant pop.: A culturally targeted and individually tailored text messaging approach. **Funding:** National Cancer Institute	Fogg Behavioral Model	**Design:** FG. **Purpose:** Examine how mScreening, a culturally tailored MTM intervention, was created to increase pap tests and HPV vaccine uptake among female KA immigrants.	N: 20 **Setting:** Unspecified. **Sample Demographic:** Mn age: 26. Gender: f. Nativity: Korea. Residence in US: Avg of 3.9 years. Occupation: Either undergraduate or graduate students in Minnesota. **Exclusion:** None listed.	1. Barriers and facilitators of HPV screening and vaccination. 2. Effective ways to increase awareness of HPV screening and vaccination. 3. Patterns of mobile phone use and text messaging as a tool for intervention 4. Strategize ways to deliver text messages that are engaging.	FG were asked questions by first author; follow-up questions asked by 2 other research staff. Conducted in Korean. Digitally recorded.	Braun and Clarke's thematic qualitative MOA. Quotes were first translated from Korean to English by bilingual research team member, then back translated by another bilingual member to	T1- Tailoring the message content to provide basic knowledge about cervical cancer. T2- Formatting message to be interactive and visually appealing. T3– Formatting message delivery to be brief and engage participants. T4– Motivate participation through use of incentive.	**LOE:** IV **Strengths:** No other study examines this phenomenon. Provides insight on how to tailor MTM to be culturally relevant based on participants' insight, to promote HPV screening and vaccination. **Weaknesses:** Poor generalizability to other locations, non-college students, and < or >21–26 y.o.; Inapplicable to non-EG readers. **Conclusions:** Can guide future research on how to tailor MTM that is culturally appropriate for HPV screening/ vaccination among AA.

Key: **CCNHP** – Culture-centric Narratives in Health Promotion, **CN** – Chinese, **CSS** – Cross-sectional survey, **CT** – culturally tailored, **DST**-digital storytelling, **DV -** Dependent variable, **f** – female, **FBM** – Fogg Behavioral Model, **FG** – focus groups, **HBV** – hepatitis B vaccine, **HCP**-healthcare provider, **HPVV** – Human Papillomavirus vaccine, **HSUM** – Health services utilization model, **IV** – Independent variable, **IZV** – Influenza, **KA** – Korean American, **KN** – Korean, **Mn** – mean, **mo**, - month, **N**-number of studies (if SR) or participants in study; **NEM** – Network Episode Model, **NET** – Narrative Engagement Theory, **NSQA** – Narrative story quality assessment, **P:** Phase, **Pap** – **PCC** – patient-centered communication, **PPPM** – practice, provider, patient model, **PPT**-pre- post-test, **PRISMA** – Preferred Reporting Items for SR and Meta-Analyses, **QE**- Quasi-experimental, **QL** – qualitative- **QN** – quantitative, **QS** – questionnaire, **RCT**- randomized controlled trial, **SDF** – Sociodemographic form, **SEM** – Social Ecological Model, **SR** – systematic review, **SSI** – Semi-structured interviews, **SSTF** – Situation-specific theoretical framework, **y.o.** – years old, **TPB** – Theory of Planned Behavior, **TS** – telephone survey, **VI** – vaccine intent, **VN**-Vietnamese/ Vietnam

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Bias: None recognized **Country:** US.			**Attrition:** 0.	5. Strategize ways to maximize participation and engagement.		ensure consistent meaning.		**Feasibility:** Limited application as this is only intended for f KA immigrants between 21-26 y.o.
H. Y. Lee et al. (2019). Exploring the need of HPV education programs in Korean American Communities. **Funding:** Not listed. **Bias:** Not listed. **Country:** US.	Health Belief Model.	**Design:** 4 sex-segregated FG (2 m, 2 f) **Method:** Convenience sampling via flyers and brochures. **Purpose:** Examine cultural influences/ barriers r/t HPV vaccine uptake and assess best HPV educational format.	N: 20 **Setting:** KN church in Chicago suburb. **Sample Demographic:** Mn age: 46.75. Gender: m-10 / f- 10. Residence in U.S.: Avg of 21.95 years. Education: College (71.4%) / High school (4.8%). **Exclusion:** non-KN, inability to read, speak, understand	1. HPV-related knowledge and information 2. Negative perception toward HPV vaccine. 3. HCP impact 4. Affordability of vaccine 5. Cultural influence of vaccine acceptance.	1-hour semi-structured interview with each FG. Audio recordings transcribed in KN by study team.	Deductive coding and content analysis via KN language. Transcript read and coded by 2 KN speaking coders. Research group collectively finalized major themes and subthemes via team discussion.	T1- Limited knowledge (i.e. HPV is only beneficial for girls, not boys). T2- Distrust r/t novelty of vaccine and unknown side effects. T3-HCP recommendation affects parents' decision. T4- KN cultural barrier of discussing sex with child.	**LOE:** IV **Strengths:** Provides insight on what factors affect KA parents' HPV vaccine decision-making. **Weaknesses:** Poor generalizability to other KA parents living outside of Chicago suburbs. Small sample size. **Conclusions:** This study can help guide HCP and researchers on how to develop HPV-focused education tailored for KA parents. **Feasibility:** Limited application as this is only intended for KA parents with adolescents age 11-18.

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			KN, parent of child <11 y.o. or >18 y.o. **Attrition:** 0.			Translated to EG by bilingual speaker. Translation verified by bilingual coders (2) and nursing faculty (2).	**T5-** Parents want to withhold if not covered by HI. **T6-**In-person seminars and short (10 min) family videos suggested by participants.	
M. Kim et al. (2017) HPV: A QL study of KA female college students' attitudes toward vaccination. **Funding:** Institute of Asian American Studies at the University of Massachusetts in Boston.	Network Episode Model (revised) and Theory of Planned Behavior.	**Design:** 5 FG. **Method:** Qualitative descriptive study; purposive sampling method. **Purpose:** Examine KA female college students' attitude, knowledge, and socio-	**N:** 20 **Setting:** Massachusetts college. **Sample Demographic:** Mn age: 21.7. Gender: f. Nativity: Korea- 14 / U.S.-6. Acculturation: KA- 12, KN-6, American-2.	KA behavior influenced by: 1. socio-cultural factors (i.e. nativity, language, social situation) 2. Social network (relationships and interactions). 3. Individual (knowledge and attitudes).	Semi structured interview guideline. Audio recorded.	Audio recordings transcribed and translated to EG by authors and professional transcriber. Content analyzed via open coding. Data evaluated 3 times by 3	**T1-** Awareness r/t HPV, HPV vaccine, and cervical cancer **T2-** Misunderstandings r/t HPV, HPV vaccine, and cervical cancer. **T3-**Attitudes r/t HPV vaccine **T4-** Social factors r/t HPV vaccine	**LOE:** IV **Strengths:** Provides awareness of cultural barriers and HPV misconceptions among KA female college students. **Weaknesses:** Limited to KA female college students residing in Massachusetts (not generalizable). **Conclusions:** Can guide HCP and researchers on how to develop HPV-focused education tailored for KA female college students.

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Bias: None recognized. **Country:** US.		cultural influences r/t HPV vaccine intent and uptake.	**Exclusion:** none-listed. **Attrition:** 0.	Behavior/ intention shaped by: 1. Attitude toward behavior 2. Subjective norms 3. Control over predictive behavior.		authors for themes and subthemes. 3 participants reviewed data interpretation to ensure accuracy of themes/ translations.	**T5**- Cultural role of health communication/ healthcare system.	**Feasibility:** Limited application as this is only intended for KA female college students.
Hopfer et al. (2017). A narrative engagement framework to understand HPV vaccination among Latina and VN women in planned parenthood setting. **Funding:** Allan Hubbell	Narrative Engagement Theory.	**Design:** Exploratory study. **Method:** Narrative inquiry interview technique; purposive sampling method. **Purpose:** Examine how cultural values and	N: 50 **n**= 24 (Latina) **n**=24 (VN) **n**=2 (PPH staff) **Setting:** PPH in Orange and San Bernardino Counties in Southern California. **Sample Demographic:**	1. Mother-daughter narratives 2. HCP recommendation 3. HPV (un)awareness narratives 4. Independence narratives among VN women. 5. School-based HPV knowledge.	Semi-structured interviews.	NVivo version 11 software. Interviews transcribed verbatim; 3 coders coded all transcripts via grounded theory approach.	**T1**- Barriers to vaccinating (perceived susceptibility to HPV, family communication gap/ stigma on sexual health). **T2**- Promoting HPV vaccination among men (low awareness, "machismo").	**LOE:** IV **Strengths:** Identified HPV vaccine decision stories from VN and Latina women. **Weaknesses:** Lacks follow-up with participants. Potential lack of data saturation in decision narratives. **Conclusions:** Can guide HCP and researchers on how to discuss HPV vaccine uptake among Latina and VN women and men.

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Research & Education Fund via NIH.

Bias: None recognized.

Country: US. | | attitudes impact HPV vaccine uptake among Latina and VN women who attend PPH facilities. | VN (n=24): Mn age*:* 22. Gender: f. HPV 1+ dose: 67% / 3-dose: 63% Sexually active: 96%. HI: 75%. Hx. Pap smear: 54%

Latina (n=24): Mn age*:* 22. Gender: f. HPV 1+ dose: 66% / 3-dose: 48% Sexually active: 90%. HI: 77%. Hx. Pap smear: 52%

HCP (n=2): -Nurse Practitioners, 4 and 12yrs with PPH. | | | | **T3** – PPH HCP perspective (extensive application process for uninsured to apply for HPV vaccine discount). | **Feasibility:** Limited application as this is study only explored Latina and VN participants. |

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			Exclusion: none-listed. **Attrition:** 0.					

Table A2

Evaluation of Quantitative Studies

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice/ Generalization
Chen et al. (2019). Developing and pilot testing a DST intervention to promote HPV vaccination among Vietnamese American adolescents. **Funding:** American Nurses Foundation and Western Institute of Nursing **Bias** None recognized **Country** U.S	Culture-centric Narratives in Health Promotion	**Design:** Two phases; Phase 1: Creation of digital stories by VN mothers with HPV vaccinated adolescents. Phase 2: Quasi-experimental pre- and post-test on HPV knowledge, perception, and intent to vaccinate children among VN mothers.	**N:** Phase 1: 2; Phase 2: 10. **Setting:** Phase 1: Workshop setting unspecified. Phase 2: Community settings/ salons. **Sample Demographic:** Phase 1: VN mothers age 52 and 59. Both born in VN, have HPV vaccinated adolescents, have family members diagnosed with cancer, and learned HPV	**IV:** DST on HPV vaccine. **DV1:** Change HPV vaccine knowledge, attitude, belief. **DV2:** HPV vaccine intention.	Pre-test survey and sociodemographic form (23 questions). HPV knowledge, attitude belief: 6-likert scale. HPV vaccine intent: 2-item (yes/no). Narrative DST quality: 12 5-point likert scale (α=0.93-0.95)	REDCap, SPSS, univariate analyses, non-parametric statistics, effect size calculated with significant variables. Wilcoxon Signed Ranks test	**DV1:** Significant change in 2 items (1) HPV vaccine needed without physical symptom: pretest *Mdn*=2.89; posttest *Mdn*=1.70; Z=-2.23, p=0.025) and (2) only girls need to be vaccinated (pretest *Mdn*=2.00; post *Mdn*=1.60; Z=2.00, p=0.046). Large effect size 1.0 and 0.8. **DV2:** 100% HPV vaccine	**LOE:** III **Strengths:** Culturally engaging HPV DST education that can influence VN mothers' intention to vaccinate children. **Weakness:** Small sample size of 10. Not a RCT. Study did not follow-up on whether 1st vaccine was completed. **Feasibility:** Can easily be administered in out-pt. offices and communities.

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		Purpose: To promote uptake of HPV vaccine among VN adolescent children.	vaccine from HCP. One bilingual in English and VN; other primarily VN. Phase 2: *Mn age:* 28. *Gender:* f. *Nativity:* VN. **Exclusion:** Children previously HPV vaccinated. **Attrition:** 0.					intention post-intervention.
Vu et al. (2020). A SR of practice-, provider-, and pt.-level determinants impacting AA' HPV intention and uptake. **Funding:** NCI, US Fogarty	Practice, provider, and pt. model.	**Design:** SR, QL and QN studies. **Purpose:** To assess how practice-, provider-, and pt.-level factors affect AA HPV vaccine	**N:** 26 **DS:** Pubmed, CINAHL, PsychINFO, ProQuest, EMBASE. **Inclusion Criteria:** Written in EG; US based; peer-reviewed of original data;	**IV1:** Practice (vaccine supply, policy, use of standing orders, language services, HI policy). **IV2:** Provider (clinical experience, training, self-efficacy, HPV vaccine recommendation).	PRISMA checklist	Sig. factors in QL: main Ts and categories >20% Sig. factors in QN: multivariate associates w/ $p < 0.05$.	**IV1:** N=3 (12%). Importance of language service and HI policy as barrier. **IV2:** N=12 (46%). Importance of HPV vaccine recommendation from providers.	**LOE:** IIa. **Strengths:** First SR that examines AA subgroup disparities on HPV vaccine uptake. **Weakness:** Lack of generalizability to other AA subgroups other than KN, CN, CB pop. Limited number of studies with varying statistical analyses.

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International Center, US National Institute on Environmental Health Science, CDC Cancer Prevention and Control Research Network. **Bias** None recognized **Country** US		intention and uptake.	published 1/1994 to 5/2019; Asian pop. focus; outcomes r/t HPV vaccine intention/ uptake. **Exclusion Criteria:** Prior to 1994; non-English; focused on non-Asian pop.; non-HPV vaccine.	**IV3:** Pt. (sociodemographic traits, attitudes, knowledge, access to care, social influences). **DV1:** Vaccine intention (willingness, acceptability **DV2:** Vaccine uptake (initiation or completion).		QATSDD: Quality appraisal Each study scored by lead author; accuracy ensured by another author reviewing score.	**IV3:** N=26 (100%). Barriers: lack of HPV vaccine knowledge, lack of perceived susceptibility, not knowing where to get vaccine, whether HI will cover. **DV1:** Higher intention among those who perceive social approval from family and friends, knowing someone with cancer. Intention: 23.4% to 72%. **DV2:** Initiation: 14% to 67%. Completion 9% to 63%.	**Conclusion:** Need for culturally-appropriate HPV education (i.e. family-based, cultural beliefs, access-related). Data analysis should consider differences among AA subgroups. **Feasibility:** Culturally tailored education focusing on HPV vaccine information, familial/ social influence and/or access to obtain vaccine can improve HPV intention/ uptake. Applicability is limited to CB, CN, and KN population.

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Kim et al. (2020). A storytelling intervention in a mobile, web-based platform: A pilot RCT to evaluate the preliminary effectiveness to promote HPV. **Funding**: ACS; supported by NCI of NIH at the University of Massachusetts Medical School Worcester **Bias** None recognized **Country** U.S	Situation-specific theoretical framework	**Design:** Pilot RCT (pre- & post survey, 2-mn follow-up survey). **Purpose:** Assess effectiveness of a mobile, web-based CT storytelling video intervention to promote HPV vaccine among KA college women.	N= 104 n = 54 (IG) n = 50 (CG) **Setting:** Web-based. **Demographics:** No significant differences between IG and CG. *Mn age of IG:* 21.5 (CG), 22.0 (CG). *Gender:* all f for both IG and CG. *South Korea nativity:* 81% (IG), 77.6% (CG). *U.S. nativity:* 18.9% (IG), 22.4% (CG). **Inclusion:** F US northeast college students; KN or KA; 18-26 yo. **Exclusion:** m; history of prior	**IV1:** Mobile, web-based CT storytelling video. **IV2**: HPV written information by ACS and CDC. **DV1:** HPV vaccine initiation/ scheduling appointment. **DV2:** HPV vaccine intention **DV3:** Changes in HPV knowledge and attitudes.	Qualtrics, an online survey tool. Knowledge: HPV 16-item (α=0.91), HPV vaccine 8-item (α=0.82), cervical cancer 8-item (α=0.81). HPV vaccine Attitude: Cognitive perception 9-item (α=0.78). Affect/ feelings 10-item (α=0.75), motivation/ intention.	SPSS, Fisher's exact test, paired *t* test, independent *t* test.	**DV1:** Post-intervention: IG 15.5%; CG= 7.1%; p<.317 (IG twice as likely to receive/ schedule HPVV). 2-mo Post-intervention: 10 participants (22.2%) received at least one dose/ scheduled for vaccine. **DV2:** Post-intervention: IG 144%; CG=67%. **DV3:** Both groups significantly improved C.G. =p<0.001 Mean score changes t (102) =2.11;	**LOE:** IIb **Strengths:** In line with other research that shows benefits of narrative video with reminder system. **Weakness:** Does not assess long-term effects; only monitored for 2 months post-intervention. Intervention is not translated in Korean. **Feasibility:** Highly accessible to those who own mobile phones. However, intervention should be offered in Korean language to target non-English speakers.

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			HPV vaccination; unable to read/speak English. **Attrition:** 0				p<.05. Both groups had more positive cognitive and affective attitudes toward HPV vaccine from pre- to post (p<0.001). No group mean differences in HPV cognition and attitudes, $t(100) = -1.93$, p=.06.	
Frew et al. (2014). Multilevel factors influencing hepatitis B screening and vaccination among Vietnamese Americans in Atlanta, Georgia. **Funding:** Atlanta Clinical and	Not listed, inferred to be Social Ecological Model.	**Design:** Survey **Purpose:** Examine barriers and ways to improve HBV vaccine uptake among VN.	**N:** 316 **Setting:** Atlanta, GA-Health fairs, CBO/ events, offices, churches, temples, festivals. **Sample Demographic:** *Mn age:* 41. m (43%) / f (54%). *Nativity:*	**IV1:** Social and community support. **IV2:** Misconceptions r/t HBV vaccine. **IV3:** HI / ability to afford medical care. **IV4:** Transportation access. **DV1:** HPV screen	Cross-sectional survey samples. 157-item questionnaire (VN or English) measuring HBV attitudes, screening, and vaccination.	IBM SPSS for Windows, exploratory factor analyses, bivariate and multivariable logistic regressions, multiple imputations	**IV1:** Social & community support of HBV vaccine r/t: 1. Screening (OR=1.69, 95% CI [1.21,2.38]). 2. Vaccination (OR=1.89, [1.27,2.81]). 3. Intent to vaccinate (OR-1.77, [1.13, 2.78]).	**LOE:** IV **Strengths:** Provides insight on knowledge deficit, misconceptions, sociodemographic traits that are barriers to low HBV vaccine uptake. **Weaknesses:** Potential recall bias from self-reports. "Don't know" answers may also lead to bias in analyses. **Conclusions:** Lack of HBV vaccine education and

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Translational Science Institute **Bias:** None recognized **Country:** US.			VN (91%) / US (5.1%). *Language:* VN (82%) / EG (11%). *HI:* Yes (55%) / No (23%). *Income:* <$20,000 (39%). *HBV screen:* Yes (49%) / No (38%). *HBV vaccine:* None (46%) /1 (34%) / 3 - (13%). **Exclusion:** Not listed. **Attrition:** 0	**DV2:** HPV vaccine intent. **DV3**: HPV vaccination.			**IV2:** Misconceptions led to decreased: 1. Screening (OR=0.67, [0.46, 0.99]). 2. Vaccination (OR=0.55, [0.35, 0.86]). **IV3:** Ability to afford medical tx.: (OR=1.23, [1.01, 1.50]). **IV4:** Greater transportation access: (OR =1.42, [1.07, 1.87]).	programs to improve uptake among at-risk VN pop. **Feasibility:** Helps HCP and researchers focus on improving vaccine uptake among VN.
Srivastav et al. (2018). Influenza vaccination coverage among English-speaking AA. **Funding:** Not listed.	Not listed, inferred to be Social Ecological Model.	**Design:** Telephone survey, random-digit-dialed. MSCD. **Method:** 2013-2015 BRFSS by state health	**N:** 28,577 **Setting:** N/A. **Sample Demographic:** Asian specific ethnicities: Other (27%), Asian Indian (21.7%), CN	**IV1:** Sociodemographic factors **IV2:** Access-to-care factors **DV1:** State-level estimates of vaccination.	Participants were asked if in the past 12 months they had either a flu shot, or flu vaccine sprayed in nose.	SUDAAN, multivariate logistic regression, t-tests,	**IV1:** Vaccine uptake among all Asians 42.4%. Filipinos and Japanese higher than whites. Lower among CN and KN compared to whites. Similar among Asian	**LOE:** IV **Strengths:** Reveals differences in vaccine uptake depending on Asian subgroup. **Weaknesses:** Potential recall bias (self-reports). BRFSS done in EG only. Lack of generalizability to AA of other subgroups who are older, less

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Bias: None recognized. **Country:** US.		departments with CDC to gather health information. **Purpose:** Assess influenza vaccination among EG-speaking AA.	(20.2%), Filipino (14%), Japanese (6.7%), KN (5.5%), VN (4.9%). **Exclusion:** <18 y.o., respondents who did not know or did not respond regarding vaccine status. **Attrition:** Not listed.				Indian, VN, and other compared to whites. **IV2-** Higher uptake among those with HCP, HI, <1 year time since last checkup, except for Koreans.	educated, and with less income. Missing data on nativity, US citizenship, length of acculturation. **Conclusions:** Influenza vaccine coverage varied significantly among AA subgroups. Need for data analyses to disaggregate AA into subgroups and ethnicities. **Feasibility:** Helps HCP and researchers focus on improving vaccine uptake among KN and CN.
Shon & Wells. (2020). Effects of PCC on influenza vaccination and self-reported general health status among Asian Americans: A comparison model for young/middle-	Health services utilization model.	**Design:** Telephone survey; random digital dialing. **Method:** 2014-2016 CHIS merged. **Purpose:** To assess	**N:** 2,838 **Setting:** California residents. **Sample Demographic:** CN (59.2%), KN (18.1%), VN (22.7%). Younger: 18-64 y.o. (57.4%) / Older 65+ y.o. (42.6%).	**IV1:** PCC (HCP clear explanation on what to do or listening skills) **IV2:** Younger (18-64 y.o.) vs Older (65+ y.o.). **DV1:** Uptake of influenza vaccine. **DV2:** Self-reported GH status	Self-report on GH, PCC, and influenza vaccine status.	SPSS and AMOS 23.0; univariate frequencies, descriptive statistics, histograms, bivariate scatterplots; independent sample t-test and chi-square test, path analyses,	**IV1/ IV2:** 1. PCC (both types) sig. improved younger influenza vaccine uptake and self-reported GH. 2. PCC did not improve vaccine uptake among older adults. PCC sign improved older	**LOE:** IV **Strengths:** Reveals importance of PCC to improve influenza vaccine uptake. **Weaknesses:** Lack of generalizability to other Asian subgroups. Only 2 types of PCC were measured. Only 2 age groups assessed. **Conclusions:** PCC provide clear information and careful

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aged and older adults. **Funding:** None. **Bias:** None recognized. **Country:** US.		impact of PCC on influenza vaccine uptake and GH of CN, VN, and KN Americans.	**Exclusion:** <18 y.o., non-California resident, non-C.N., K.N., V.N. **Attrition:** Not listed.			GFI, CFI, RMSEA, and SRMR.	adults' GH status.	listening to motivate young adults to get vaccinated. **Feasibility:** Helps HCP and researchers focus on creating PCC manual to improve vaccine uptake.

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Table A3

Synthesis Table

Studies	Chen et al.	Frew et al.	Hopfer et al.	M. Kim et al.	Kim et al.	H. Y. Lee et al.	Y. M. Lee et al.	Shon & Wells	Srivastav et al.	Vu et al.
Study Characteristics										
Year	2019	2014	2017	2017	2020	2019	2019	2020	2018	2020
LOE	III	IV	IV	IV	IIb	IV	IV	IV	IV	IIa
Design	P1: DST video; P2: QE PPE	CSS	Exploratory	FG	Pilot RCT, PPT, 2-mo. f/u	FG	FG	TS	TS, MCSD	SR (QL & QN)
N	P1: 2; P2: 10	316	24 (VN)	20	104	20	20	2,838	28,577	26
Theory	CCNHP	SEM, inferred	NET	NEM, TPB	SSTF	FBM	FBM	HSUM	SEM, inferred	PPPM
Measurement Tools	SDF, PPT (HPV knowledge, attitude, belief, VI), NSQA	QS on HBV attitude, screening, vaccine	SSI	SSI	QS on HBV attitude, knowledge, vaccine (Qualtrics)	SSI	SSI	QS on GH, PCC, IZV status	QS on IZV uptake	PRISMA
Data/ Intervention length	P1: 2 days; P2: 1 day	n/a	1 mo.	1 mo.	2 mo.	7 days	n/a	2 yrs.	2 yrs.	n/a
Setting	Community	Community	Community	Community	Community	Community	Community	Telephone	Telephone	Community
Country	US.	US.	US.	US.	US.	US.	US.	US.	US.	US.
Participant Traits										
Age (Mn y.o.)	P1: 55.5; P2: 28	41	22 (VN)	21.7	21.8	26	46.75	n/a	n/a	n/a
f (%)	100%	54%	100%	100%	100%	100%	50%	56.9	50.3% (AA)	n/a
Residence in U.S. (Mn years)	P1: 14.5; P2: 17.9	unknown	n/a	n/a	n/a	3.9	21.95	n/a	n/a	n/a

Key: CCNHP – Culture-centric Narratives in Health Promotion, **CN** – Chinese, **CSS** – Cross-sectional survey, **CT** – culturally tailored, **DST**-digital storytelling, **DV -** Dependent variable, **f** – female, **FBM** – Fogg Behavioral Model, **FG** – focus groups, **HBV** – hepatitis B vaccine, **HCP**-healthcare provider, **HPVV** – Human Papillomavirus vaccine, **HSUM** – Health services utilization model, **IV** – Independent variable, **IZV** – Influenza, **KA** – Korean American, **KN** – Korean, **Mn** – mean, **mo**, - month, **N**-number of studies (if SR) or participants in study; **NEM** – Network Episode Model, **NET** – Narrative Engagement Theory, **NSQA** – Narrative story quality assessment, **P:** Phase, **Pap** – **PCC** – patient-centered communication, **PPPM** – practice, provider, patient model, **PPT**-pre- post-test, **PRISMA** – Preferred Reporting Items for SR and Meta-Analyses, **QE-** Quasi-experimental, **QL** – qualitative- **QN** – quantitative, **QS** – questionnaire, **RCT**- randomized controlled trial, **SDF** – Sociodemographic form, **SEM** – Social Ecological Model, **SR** – systematic review, **SSI** – Semi-structured interviews, **SSTF** – Situation-specific theoretical framework, **y.o.** – years old, **TPB** – Theory of Planned Behavior, **TS** – telephone survey, **VI** – vaccine intent, **VN**-Vietnamese/ Vietnam

Nativity outside U.S. (%)	P1: 100%; P2: 100%	94.7%	0% (VN)	70%	77.9%	100%		80%	n/a	n/a
English fluency (%)	P1: 50%; P2: 30%	unknown	100% (VN)	n/a	100%	n/a	n/a	n/a	100%	n/a
Korean				●	●	●	●	●	●	●
Vietnamese	●	●	●					●	●	●
Chinese								●	●	●
IV / Interventions										
Practice										
Language services	●									●
Provider										
HCP recommendation	●		●	●			●	●	●	●
Patient										
Community support / approval		●		●			●			●
CT text-message					●					
DST video	●				●					
Incentive	●			●	●	●		●		
Health Insurance		●					●		●	
Transportation		●								
Knowing one w/ illness										●
Bilingual flyer					●					●
DV / Themes Identified										
Changes in attitude/ beliefs	●		●	●	●	●	●	●	●	
Improved knowledge	●		●	●	●	●	●	●	●	
Improved VI	●	●	●			●			●	

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Improved vaccine initiation	n/a	•			•			•	•	
Cultural Tailoring										
IV	DST video	Social support	HCP recommendation	HCP recommendation	DST video, Bilingual flyer	CT text-messaging	HPV education	HCP recommendation	HCP recommendation	n/a
Disease	HPV	HBV	HPV	HPV	HPV	HPV	HPV	Influenza		HPV
Culture	VN	VN	VN	KN	KN	KN	KN	CN, KN, VN	CN, KN, VN	CN, KN, VN
Multi-language	•	•		•	•		•			•
Health literacy	•	•		•	•		•			•
Community	•	•					•			•

Key: CCNHP – Culture-centric Narratives in Health Promotion, **CN** – Chinese, **CSS** – Cross-sectional survey, **CT** – culturally tailored, **DST**-digital storytelling, **DV -** Dependent variable, **f** – female, **FBM** – Fogg Behavioral Model, **FG** – focus groups, **HBV** – hepatitis B vaccine, **HCP**-healthcare provider, **HPVV** – Human Papillomavirus vaccine, **HSUM** – Health services utilization model, **IV** – Independent variable, **IZV** – Influenza, **KA** – Korean American, **KN** – Korean, **Mn** – mean, **mo**, - month, **N**-number of studies (if SR) or participants in study; **NEM** – Network Episode Model, **NET** – Narrative Engagement Theory, **NSQA** – Narrative story quality assessment, **P:** Phase, **Pap** – **PCC** – patient-centered communication, **PPPM** – practice, provider, patient model, **PPT**-pre- post-test, **PRISMA** – Preferred Reporting Items for SR and Meta-Analyses, **QE-** Quasi-experimental, **QL** – qualitative, **QN** – quantitative, **QS** – questionnaire, **RCT**- randomized controlled trial, **SDF** – Sociodemographic form, **SEM** – Social Ecological Model, **SR** – systematic review, **SSI** – Semi-structured interviews, **SSTF** – Situation-specific theoretical framework, **y.o.** – years old, **TPB** – Theory of Planned Behavior, **TS** – telephone survey, **VI** – vaccine intent, **VN**-Vietnamese/ Vietnam

Appendix B

Models and Frameworks

Figure B1

Culture-Centric Narratives in Health Promotion Theory
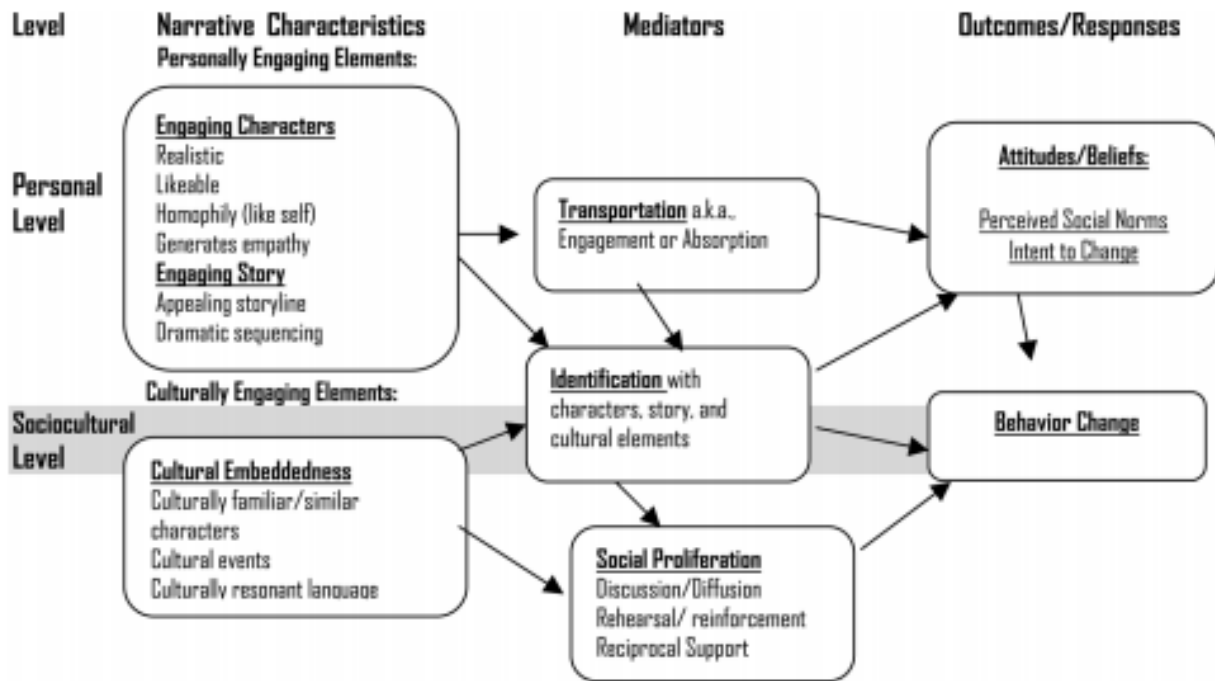
Figure 1. A model of culture-centric narratives in health promotion.

Larkey & Hetch (2010).

Figure B2

Stetler's Model of Evidence-Based Practice
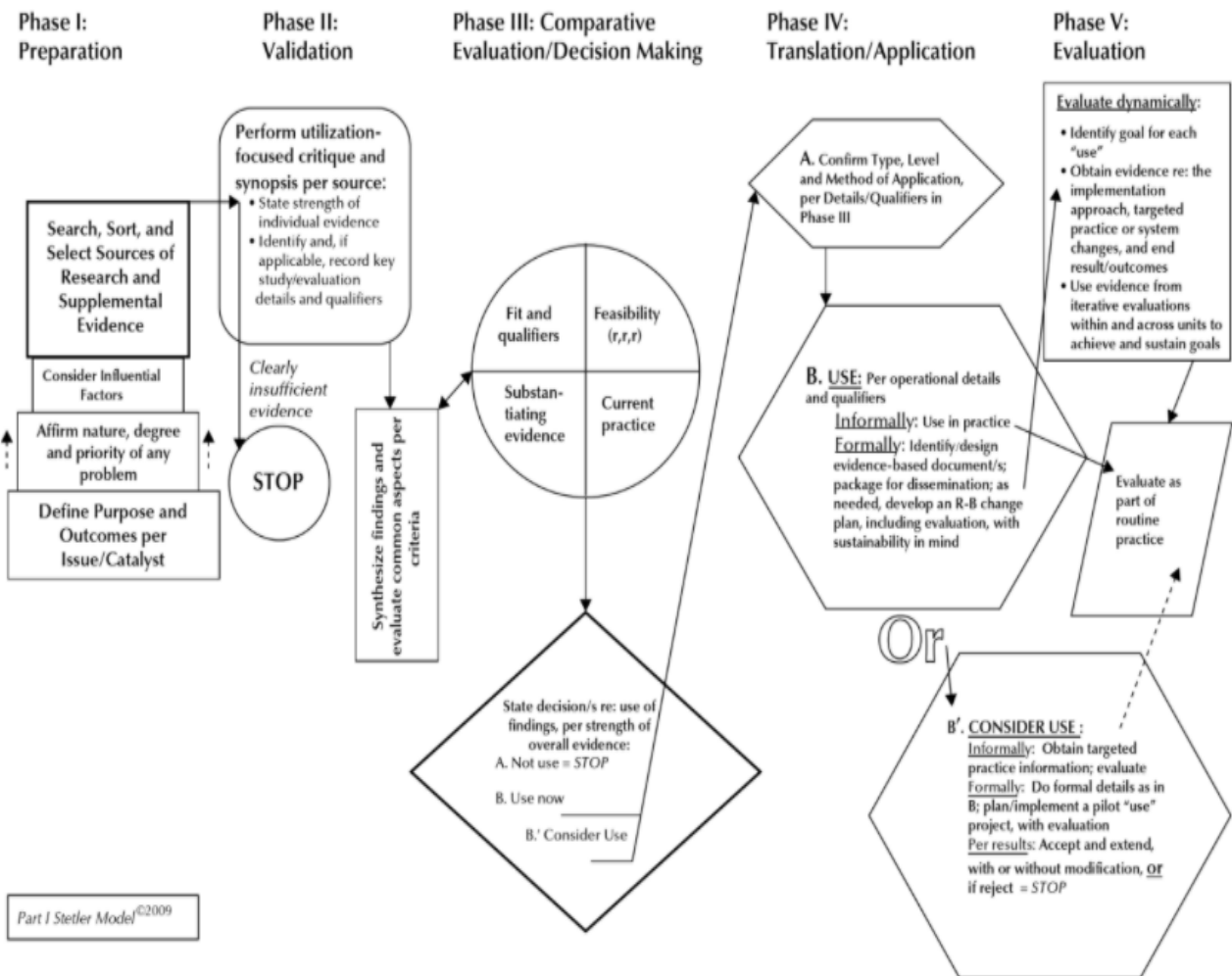
Stetler (2009).

Appendix C

Budget and Timeline

Figure C1

Budget

Phase	Activities	Cost	subtotal	Total
Preparation	Korean translator service for consent, video subtitles, and pre- and post-survey.	Incurred by student	$0	
	Video editing	Incurred by student	$0	
Delivery	Incentive for pre- and post-survey for project participants $10/person for pre- and post-survey [20 participants] $5/person additional incentive for 1-month follow-up survey	$300		
Evaluation	SPSS for data analysis	Free for ASU students	$0	
				$300

Figure C2

Timeline

May 2021	Define ethical standards to maintain the protection of participants and create a logic model.
June 2021	Design project methods section.
July 2021	Create project budget, address sustainability for this project.
August 2021	Apply for GPSA grant
September 2021	Apply for ASU IRB and receive approval.
October-December 2021	Sample recruitment, intervention implementation, and data collection.
Jan-Feb 2022	Data cleaning and analysis.
Mar-Apr 2022	Complete DNP project final paper based on the findings; submit an abstract for conference presentation; disseminate findings to community collaborators.
May 2022	Present DNP project findings to the program; submit the manuscript with my mentor to a peer-reviewed journal.
Total: 12 months	

Appendix D

Data Methods

Figure D1

Email Project Invitation (English)

CARE Registry Participants: ASU COVID-19 Project Invitation   External   Inbox ×

dstcovidvaccine@gmail.com   Fri, Feb 11, 4:55 PM
to me

Dear participant from the CARE Registry,

My name is Paula Yoon, a DNP student at Arizona State (ASU) University Edson College of Nursing & Health Innovation. I am conducting an educational project under my Professor Dr. Angela Chen's guidance. We are contacting you because you are a participant in the CARE Registry and may be eligible to participate in our study. CARE stands for *Collaborative Approach for Asian Americans & Pacific Islanders Research & Education*, a research registry specifically created to increase Asian American and Pacific Islander participation and representation in research. CARE is a collaboration across multiple community and academic partners including UC San Francisco, UC Irvine, UC Davis, International Children Assistance Network (ICAN) and National Asian Pacific Center on Aging (NAPCA). When you joined the CARE Registry, you indicated that you would like to be contacted about future research projects.

In this study, we are looking for Korean Americans or Korean Immigrants who are at least 18 years old and have NOT received any COVID-19 vaccines to join a project developed by ASU. We would like to learn if an education consisting of two brief videos (about 10 minutes total) about COVID-19 and the vaccines will help inform your decision to receive the vaccine. Please use the survey link to start. You will first answer questions to determine your eligibility. If you're eligible and hit "agree" after reading the consent form, you will be led to the videos and two surveys. Each survey will take about 10-15 minutes to complete. One month later, we will send you another brief survey to learn about your vaccination and experience.

You will receive $15 Amazon gift card total for your participation ($10 for watching videos and filling out brief surveys before and after watching, another $5 for a follow up survey) sent to your email address. As always, your participation in research is voluntary and your decision to participate in this study will not affect your involvement in the CARE Registry.

You may open the survey in your web browser by clicking the link below:

KA COVID-19 Vaccine Video Survey for CARE Registry Participants

If the link above does not work, try copying the link below into your web browser:

https://redcap.rc.asu.edu/surveys/?s=SAMPLE_LINK

This link is unique to you and should not be forwarded to others. If you have any questions concerning the research study or your participation in this study, please contact us via DSTCovidVaccine@gmail.com. You can also directly contact my Professor Dr. Angela Chen if preferred (angela.ccchen@asu.edu).

Thank you for your time and participation!

Paula Yoon

Figure D2

Email Project Invitation (Korean)

CARE Registry 참가자 분께: 애리조나 주립대학교 COVID-19 프로젝트의 초대합니다 External Inbox ×

dstcovidvaccine@gmail.com   Fri, Feb 11, 4:50 PM
to me

文A Korean ▾ › English ▾ Translate message   Turn off for: Korean ×

CARE Registry 참가자 분께,

저는 애리조나 주립대학교 (Arizona State University) 에드슨 (Edson) 간호 건강 혁신대학의 DNP 학생인 폴라 윤 (Paula Yoon) 입니다. 저는 안젤라 첸 (Dr. Angela Chen) 박사님의 지도 아래 교육 프로젝트를 진행하고 있습니다. 이번 코로나19 예방접종 관련 프로젝트에 참여하실 여러 분을 초대하고자 합니다. 귀하는 CARE Registry 의 참가자이며 본 검사에 참여할 수 있는 자격이 있기 때문에 연락 드렸습니다. CARE (Collaborative Access for Asian American & Pacific Islanders Research & Education)는 아시아 태평양 도서민의 연구 참여와 대표성을 높이기 위해 특별히 만들어진 연구 기관입니다. CARE는 UC 샌프란시스코, UC 어바인, UC 데이비스, 국제 아동 지원 네트워크 (ICAN) 및 국립 아시아 태평양 노화 센터(NAPCA)를 포함한 여러 커뮤니티 및 학술 파트너 기관과 협업 하고 있습니다. 귀하는 CARE Registry에 가입할 때 향후 연구 프로젝트에 대해 참여할 의사가 있다고 하였습니다.

이번 연구에서는 애리조나 주립 대학교가 개발한 프로젝트에 참여할 18세 이상 및 COVID-19 백신을 접종하지 않은 한국계 미국인이나 이민자를 찾고자 합니다. Covid-19과 백신에 대한 두 개의 짧은 비디오 (총 10분) 로 구성된 교육이 백신 접종 의사를 결정하는데 도움이 되는지 알고자 합니다. 설문조사 링크를 통하여 설문에 응하시면 됩니다. 귀하의 참여 자격을 확인 하기 위해 동의서의 질문에 먼저 답을 해주셔야 합니다. 자격 요건이 충족된다면, 동의 양식을 읽은 후 "동의"를 누르면, 동영상과 2개의 설문조사로 연결됩니다. 각 설문조사를 완료하는 데 약 10-15분이 소요됩니다. 한 달 후, 귀하의 예방접종 및 경험에 대해 알아보기 위해 또 다른 간단한 설문조사를 보내드릴 예정입니다.

귀하의 이메일 주소 계정으로 설문조사 완료에 대해 총 Amazon gift card $15를 보내드릴 예정입니다 (동영상 시청 및 설문조사 금액 $10, 후속 설문조사 추가 금액 $5). 연구 참여는 자발적이며 이 연구 참여 결정은 CARE Registry 참가에 영향을 미치지 않습니다.

아래 링크를 클릭하여 웹 브라우저에서 설문조사 진행하실 수 있습니다:

CARE Registry의 COVID-19 설문조사

위의 링크가 작동하지 않으면 아래 링크를 웹 브라우저에 입력해 보십시오:

https://redcap.rc.asu.edu/surveys/?s=SAMPLE_LINK

이 링크는 귀하에게만 해당되며 다른 사람에게 전달되어서는 안 됩니다. 연구 또는 연구 참여와 관련하여 질문이 있는 경우 DSTCovidVaccine@gmail.com으로 문의하시기 바랍니다. 원하는 경우 연구팀 및 Angela Chen 박사님께 직접 연락하실 수 있습니다 (angela.ccchen@asu.edu).

귀하의 참여와 소중한 시간을 내어주심에 감사드립니다!

Paula Yoon

Figure D3

Pre-survey: 3-Item Brief Screening Questions

Figure D4

Pre-survey: Sociodemographic Questions

In what year were you born? * must provide value	
How would you describe your gender? * must provide value	○ Male ○ Female ○ Other: reset
What is your level of schooling? * must provide value	○ No formal schooling ○ Some elementary school ○ Finished elementary school ○ Finished middle school/junior high school ○ Some high school ○ Finished high school or GED ○ Some vocational or college training ○ Finished bachelor's degree ○ Finished graduate degree (medical, law, MBA, Master's degree, PhD degree) reset
Where were you born? * must provide value	○ In the United States ○ Outside the United States reset
Do you speak a language other than English at home? * must provide value	○ Yes ○ No reset
Do you currently have health insurance? * must provide value	○ Yes ○ No reset

How satisfied are you with (your/your family's) present financial situation?

	Extremely difficult	Very difficult	Somewhat difficult	Slightly difficult	Not difficult at all
Before COVID-19 * must provide value	○	○	○	○	○
					reset
Now * must provide value	○	○	○	○	○
					reset

<< Previous Page   Next Page >>

Save & Return Later

Figure D5

Pre-post-survey: Rodriguez et al.'s (2021) 17-Item Vaccine Hesitancy Scale

If a vaccine to prevent COVID-19 infection was available would you get vaccinated?
* must provide value

○ Yes
○ No

reset

Do you believe a vaccine could be an effective way to prevent a COVID-19 infection?
* must provide value

○ Yes
○ No

reset

If your doctor or another health professional recommended that you get the COVID-19 vaccine, would you get vaccinated?
* must provide value

○ Yes
○ No

reset

Do you feel that your current health status or other health conditions would make it unsafe to get a COVID-19 vaccine?
* must provide value

○ Yes
○ No

reset

Do you feel that your current health status or other health conditions make it important for you to get a COVID-19 vaccine?
* must provide value

○ Yes
○ No

reset

If getting vaccinated was a requirement to go back to your daily activities (working, traveling, public places) would you get vaccinated?
* must provide value

○ Yes
○ No

reset

Do you feel that healthcare professionals, government, local authorities or leaders may force you into getting vaccinated?
* must provide value

○ Yes
○ No

reset

Figure D6

Pre-post-survey: Chen et al.'s (2021) 2-Item Vaccine Intent

Do you plan to get vaccinated?	○ Yes ○ No ○ Maybe
Do you plan to get vaccinated? Please select all reasons that apply.	☐ It is safe ☐ It will protect me from COVID-19 ☐ It will help keep me healthy ☐ It will protect other people in the society ☐ Other (specify):
Do you plan to get vaccinated? Please select all reasons that apply.	☐ I am not sure if it is safe ☐ I am not sure if it will help me prevent COVID-19 ☐ I am sure if it will help keep me healthy ☐ I am not sure if it will protect other people in the society ☐ Other (specify):
Do you plan to get vaccinated? Please select all reasons that apply.	☐ I do not trust vaccines ☐ Vaccines are toxic ☐ Vaccines can cause health problems such as Autism ☐ I do not need it because I do not see any risk of getting infected ☐ I am morally opposed to vaccination ☐ Companies develop vaccines to make money ☐ Other (specify):

Figure D7

Post-survey: W. S. Kim et al.'s (2017) 15-Item Narrative Quality Assessment Tool

After watching the two videos, please answer the questions below.

	Disagree a lot	Disagree a little	Neutral	Agree a little	Agree a lot
I could really relate to the people in the stories.	○	○	○	○	○
When I was listening to the stories, I could imagine something like that happening to me.	○	○	○	○	○
The stories felt like something from my community.	○	○	○	○	○
I could easily identify with some of the characters in the stories	○	○	○	○	○
I felt connected to some of the characters, like I could have been playing that role.	○	○	○	○	○
I felt really connected to some of the events.	○	○	○	○	○
The stories created a picture in my mind.	○	○	○	○	○
I was captivated by the stories.	○	○	○	○	○
The stories really grabbed my attention.	○	○	○	○	○
The stories touched my heart.	○	○	○	○	○
This stories will stay with me for a long time.	○	○	○	○	○
I wanted to know more about what happens next to the characters.	○	○	○	○	○

Do you plan to recommend these stories to any of your relatives, friends or colleagues?	○ Yes ○ No
Do you plan to recommend COVID-19 vaccine to any of your relatives, friends or colleagues?	○ Yes ○ No
Which story do you like better?	○ Story 1: "Dr. Rheem - I received the COVID-19 vaccine" ○ Story 2: "Dr. Sarang Choi's COVID-19 Vaccine Vlog" ○ I like all stories ○ Neither one is good

Figure D8

1-Month-Post-Survey: Chen et al.'s (2021) 6-Item Vaccine Intent/Uptake

KA COVID-19 Vaccine Video Survey for CARE Registry Participants 1-Month Follow-up

Thank you for your interest in participating in this project.

You will receive a $5 Amazon gift card for completing this 1-month follow-up survey and it will be sent to the email address you provide.

Have you received any COVID-19 vaccines so far?
- ◯ Yes
- ◯ No

Please select all reasons that apply.
- ☐ It is safe
- ☐ It will protect me from COVID-19
- ☐ It will help keep me healthy
- ☐ It will protect other people in the society
- ☐ Other (specify):

Other (specify):

_____

Which vaccine did you receive?
- ☐ Pfizer
- ☐ Moderna
- ☐ Johnson & Johnson

How many doses have you received?
- ☐ One
- ☐ Two
- ☐ Three or more

If you plan to only receive one shot, what are the reasons that you don't plan to take the 2nd or 3rd shot? Select all that apply.
- ☐ I am not sure if it is safe
- ☐ I am not sure if it will help me prevent COVID-19
- ☐ I am sure if it will help keep me healthy
- ☐ I am not sure if it will protect other people in the society
- ☐ I do not trust vaccines
- ☐ Vaccines are toxic
- ☐ Vaccines can cause health problems such as Autism
- ☐ I do not need it because I do not see any risk of getting infected
- ☐ I am morally opposed to vaccination.
- ☐ Companies develop vaccines to make money
- ☐ Other (specify):

Other (specify):

_____

Have you encountered any problems getting COVID-19 vaccines?
- ☐ Yes (please specify):
- ☐ No

Yes (specify):

_____

Do you plan to get vaccinated?
- ◯ Yes
- ◯ No
- ◯ Maybe

Do you plan to get vaccinated? Please select all reasons that apply.	☐ It is safe ☐ It will protect me from COVID-19 ☐ It will help keep me healthy ☐ It will protect other people in the society ☐ Other (specify):
Other (specify):	_____
Do you plan to get vaccinated? Please select all reasons that apply.	☐ I am not sure if it is safe ☐ I am not sure if it will help me prevent COVID-19 ☐ I am sure if it will help keep me healthy ☐ I am not sure if it will protect other people in the society ☐ Other (specify):
Other (specify):	_____
Do you plan to get vaccinated? Please select all reasons that apply.	☐ I do not trust vaccines ☐ Vaccines are toxic ☐ Vaccines can cause health problems such as Autism ☐ I do not need it because I do not see any risk of getting infected ☐ I am morally opposed to vaccination ☐ Companies develop vaccines to make money ☐ Other (specify):
Other (specify):	_____

Figure D9

Bar Graph: VHS Scores Pre-Post-DST Intervention