

# A Mixed-Method Multimedia Pilot Project to Promote Healthy Living in an Underserved Vietnamese Community

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## Abstract

*The health of Vietnamese persons in the US lags behind other Asians. Our health awareness program for Vietnamese immigrants sought to (1) increase participants' confidence in medical care; (2) improve health knowledge; and (3) promote the health sciences as a career. Eight health information sessions were designed and implemented through interactive discussions, bilingual handouts, and multimedia electronic formats. Participants were given pre- and post-session surveys of their health confidence and a knowledge assessment. The program ended with information on science careers for the participants' children. Participants' confidence in self and family healthcare was significantly higher after the sessions. Participants scored higher to a statistically significant degree in the post-program health knowledge assessment, compared to non-participants. Interactive health sessions increased health literacy and confidence within the local Vietnamese community. Community-driven, culturally sensitive discussions, and the use of multi-media teaching are cost-effective, and could be used for other underserved immigrant populations in the US and globally.*

**Key Words:** Vietnamese, emigrants and immigrants, health promotion, multimedia, health literacy, underserved populations

## Introduction

The Vietnamese community in the United States is growing, with a 40% increase nationwide, and a 34% population increase in our state (Ohio), between 2000 and 2010, according to the US Census bureau (US Census Bureau, 2010). The health and well being of Vietnamese persons, however, lag behind other Asian groups. Vietnamese living in the United States are known to have higher rates of cardiovascular disease and hypertension, while having lower reporting and treatment of serious conditions such as cervical cancer, domestic violence, depression, and addiction (Cho, 2012; Ma, 2013; Pham, TM, Rosenthal, MP, & Diamond, JJ, 1999; Wong, W, and Barnett, PG., 2005). Furthermore, Vietnamese people are an underrepresented minority in the science and health professions vis-à-vis both Whites and other Asians, which is a detriment to public health and the larger medical community (Nivet, MA, et. al., 2008).

The aim of our study was to create an inexpensive, reproducible, culturally sensitive educational intervention which would: (1) promote short-term knowledge and confidence about health maintenance; and (2) be free and available to participants *in perpetuity* through the use of the Internet and social media. Social media has been used successfully in health promotion for smoking prevention, infectious disease surveillance, weight management, and sexual health, for example (Cheung YT, et. al, 2015; Zowawi HM, et. al., 2015; Jane M, Foster J, Hagger M, &Pal S, 2015; Veale HJ, Sacks-Davis R, Weaver ER, Pedrana AE, Stoové MA, &Hellard ME, 2015); however, to our knowledge no study has yet targeted underserved immigrant communities via social media. Our hypothesis was that a health literacy and health promotion educational program featuring live interactive sessions, reinforced by social and electronic media, and designed to address the specific needs of an underserved Vietnamese community could improve short-term knowledge, provide confidence in health promotion among the participants, and potentially promote the health sciences as a career for the targeted

group. Making the facilitators medical students would also be a novel learning experience that may serve to expand cultural competency within the medical college and university community.

**Materials and methods**

**Funding and Institutional Approval**

This program was conducted in 2013 and funded by the Wright State University Inclusion Infusion Grant. After submission of our protocol to the Wright State University Institutional Review Board, we received correspondence indicating that we did not need to submit our study for further review.

**Setting and Context**

We chose to implement our pilot project at the Sacred Heart Church parish hall in Dayton, Ohio, United States. This community center is the central gathering location for a substantial fraction of the Vietnamese population, whose strong religious beliefs play an active role in daily life. Because the medical student instructor and curricular designer was fluent in the Vietnamese language, and embedded socially and culturally in the Vietnamese community, initiation of the project was uncomplicated and trust within the community was quickly established. In addition, though national public health data had identified specific, serious health problems within this community, we chose to also solicit the underserved populations’ own health concerns first, and build a hybrid health program cognizant of both community perception and national epidemiological reality.

**Design of Live Sessions**

Eight interactive two-hour health maintenance sessions, in the Vietnamese language, were created for Vietnamese men and women. The introductory session was advertised in church bulletins, email, and through word of mouth within the Dayton, Ohio Vietnamese community one month prior to the start of the program. Subjects were recruited voluntarily if they responded to the advertisements, were Vietnamese in origin, and were adults (over age 18). In the first session, participants were asked what they wanted to learn regarding their own health. A lively discussion ensued regarding the importance of these topics to the local community. The medical student facilitator and co-author (HT) created detailed notes on the community concerns.

The student then researched and translated topical information prior to the subsequent week’s session in order to answer these health questions; therefore, planning of each session integrated community needs with epidemiological data regarding the most serious health problems facing the Vietnamese communities in the US. The next seven weeks were then devoted to answering these specific questions and topics at the local Vietnamese church.

Discussion topics of importance to the community included skincare; hypertension and the link to fish sauce (a common ingredient in Vietnamese cooking); pain in the elderly (arthritis and osteoporosis); alopecia; nutrition; allergies and sinusitis; neuromuscular problems; and healthy cooking methods. Subtopics included body movements; diabetes patient care; sexual health and sexually transmitted infections (STIs); cancer; methods for better memory; tai chi; varicose veins; knee pain; carbonated drinks; and alternative medicines

**Table 1** Topics Discussed In Eight-Week Health Promotion Program

Week	Discussion Topics
1	Participant-initiated learning goals
2	Skin care, cancer, body movements
3	Hypertension & fish sauce, varicose veins, carbonated drinks
4	Osteoarthritis & osteoporosis, diabetes mellitus type 1 & 2, Tai Chi
5	Nutrition, hair loss
6	Memory, leprosy, sinusitis
7	STIs, knee pain, hemorrhoids
8	Cooking methods, medical school tour, Q&A panel, 1-on-1 time with panelists

After the introductory session, all other sessions began with a 10-minute instructional video (in Vietnamese) created by the medical student facilitator on the specific topic requested, using evidence-based references. Videos were posted to YouTube, for easy access for all participants, their families, and other Vietnamese persons outside the community (YouTube

address in References, accessed January 2016). In addition, DVDs and USB flash drives were provided to all participants with the same videos, for those who could not afford Internet access or were not computer literate. A Facebook page (“Suc Khoe Nguoi Viet,” translated “Health of the Vietnamese People”) was established and frequently updated with health tips in the

Vietnamese language to maintain a longer-term presence within the Vietnamese community (Facebook address in References, accessed August 2015). Healthy refreshments were also provided at every session, to encourage healthy eating – and a discussion was generated regarding the food and the importance of nutritional balance. Finally, participants were also given short take-home handouts, in English and Vietnamese, with the key highlights of each session.

Session 8 (the final session) of this project included the normal discussion group, but was then followed by a tour, panel discussion, and dinner conducted at the local medical school (Wright State University Boonshoft School of Medicine) to promote health sciences as a career for underrepresented Vietnamese youth. The medical student facilitator gave pilot participants and their children—in particular high school and college-aged students—a tour of the medical school. During the tour, personal questions of participants were thoroughly answered. A question and answer panel on careers in science was convened. The six-member panel included a pharmacy student, pediatrician and medical school professor, second year medical resident, medical interpreter, second year medical student, and a Chemistry PhD candidate to answer the young people's inquiries and give practical advice for pursuing a scientific career. Of the six panelists, five were Vietnamese and one was Indian; four were fluent in the Vietnamese language. The question and answer session was conducted in English, as this was the preferred language for the participants' children. After the medical school tour and question and answer session, participants had one-on-one time with session panelists over dinner for individual questions—both in English and Vietnamese, as preferred by participants.

#### ***Assessment of Program Effectiveness***

To quantitatively evaluate the effectiveness of the program as a whole, participants were anonymously surveyed regarding their confidence in caring for the health of themselves and their families on the first and last sessions of the program. Participants were also given a knowledge assessment of the health topics discussed one month after completion of the program and scores were compared to those of Vietnamese people of the same Dayton, Ohio community who did not attend sessions. This control group (those who did not

attend any sessions) were also recruited by solicitation and random selection through the same local Vietnamese church, and were included if they were adult Vietnamese immigrants. We decided to allow walk-ins instead of a strict committed enrollment for the convenience of those who chose to come, to create a natural control group, and to allow greater community benefit. Study participants and their children also completed qualitative surveys of the sessions and medical school tour.

## **Results**

### ***Demographics***

The number of session participants varied weekly, but ranged from 10-30 people, and averaged 21 persons per session. There were 28 participants in the first session and also 28 participants in the final discussion. Seventy-one percent of those in the last session ( $n = 20$ ) had attended the first one. Twenty people attended  $\geq 4$  sessions and four people attended all eight sessions. Approximately 55 people attended the medical school tour, but this number included both participants and their children.

A demographic survey was completed by participants of the program and by those who did not participate (controls); the results of which are listed in Table 2. Twenty-seven program participants partook in the survey. Controls ( $n = 20$ ) were randomly selected adult Vietnamese persons who attended the same church as the participants, who did not attend the program, and agreed to take the final knowledge quiz. The average age of program participants was 47.8 years and 45.2 years for those who did not attend sessions. The majority of program attendees were female, while most of those who did not attend were males. The majority of both program participants and controls were U.S. citizens, born in Vietnam, have a family doctor, use their family doctor to get answers to health questions, and feel they get great quality of care from their doctor. One hundred percent of both groups were Catholic. Program participants' education level were mostly middle school and high school graduate, whereas most controls were high school graduates, college graduates, or beyond. Program participants spoke and read English at an "average" level, while control group participants spoke and read English "well."

**Table 2** Demographics of participants who took the final knowledge quiz and attended sessions (n=27) vs. controls who took the quiz but did not attend sessions (n=20)

	Attended ≥1 Sessions n = 27	Did Not Attend Sessions n = 20
Age average	47.8	45.2
Gender		
Female	55.6%	30%
Male	44.4%	70%
US Citizen		
Yes	62.9%	85%
No	37.1%	15%
Country of Birth		
Vietnam	96.2%	100%
USA	3.8%	0%
Religion		
Catholic	100%	100%
Education		
Middle school	22%	10%
Graduated high school	44%	45%
Graduated college or beyond	18%	45%
Unspecified	16%	0%
Speak English (1=very well; 2=well; 3=ok; 4=poor)	2.89 – speaks average English	2.30 – speaks English well
Read English (1=very well; 2=well; 3=ok; 4=poor)	2.89 – read English average	2.30 – read English well
Do You Have Family Doctor		
Yes	74%	80%
No	26%	20%
To Whom Do You Ask Health Questions (choose all that apply)		
Family doctor	66%	95%
ER/urgent care	15%	0%
Internet	29.6%	15%
Family/friends	18.5%	10%
Other	7%	0%
Quality of Care from Doctor (1=poor; 2=ok; 3=great; 4=very great)	3.08 – great quality of care	3.00 – great quality of care

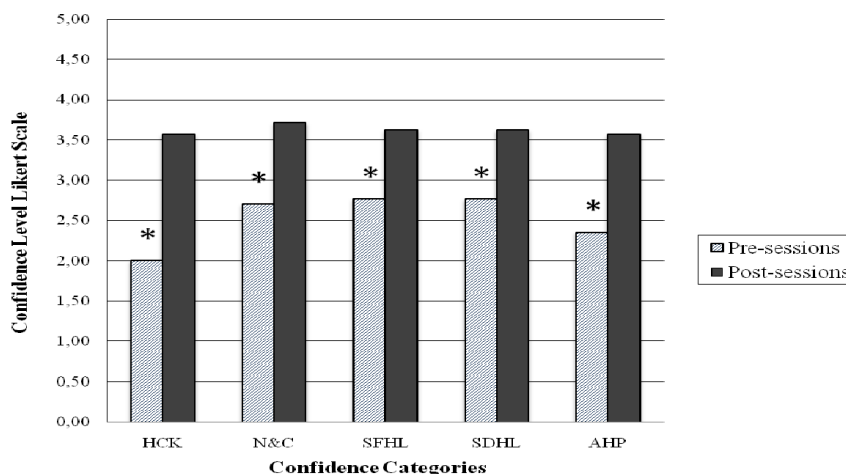
### Assessment of Confidence

We could find no previously validated measure in the literature to qualitatively rank confidence in health parameters for the Vietnamese community. Therefore, before and after attending the program (in the first and last sessions), participants were asked to rank their confidence level using a 5-point Likert scale (1 = not at all; 2 = a little bit; 3 = somewhat confident; 4 = confident; 5 = very confident) about (1) health care knowledge; (2) nutrition and cooking; (3) speaking to family about healthy living; (4) speaking to their doctor about healthy living; and (5) knowledge about specific health problems within the Vietnamese community. Of the 28 who

attended the first session, 17 (61%) agreed to take the pre-session health confidence survey. Of the 28 who attended the last session, 21 (75%) agreed to take the post-session confidence survey. All surveys were anonymous.

In all five categories, confidence levels were significantly higher in the post-session survey, with pre-intervention confidence ranging from 2.00 to 2.76 (n=17), and post-intervention confidence ranging from 3.57 to 3.71 (n=21)

Figure 1 Participant's Confidence Regarding Health Before (n = 17) And After (n =21) Sessions



Note: HCK = health care knowledge;  
 N&C = nutrition & cooking;  
 SFHL = speaking to family about healthy living;  
 SDHL = speaking to doctor about healthy living;  
 AHP = understanding of specific health problems in Vietnamese Community (\* denotes statistically significant difference)

**Assessment of Medical Knowledge**

Because the interactive health sessions were custom-built around the specific concerns elicited by this community, no prior formal assessments of health literacy were available in Vietnamese or English. Therefore, a short multiple-choice quiz was created de novo (17 questions, covering material from each of seven sessions, translated into Vietnamese and English). The questions were written by the lead author (HT) and had face-validity. The senior author and medical education expert (AKF), having taken faculty

development courses in question-writing and informed by the literature on the subject, reviewed the questions and ensured that questions on the assessment were tied to course content and learning objectives. It was also determined that the questions were relevant to daily living—not course-specific—and therefore could theoretically be answered correctly even by people who did not attend the program. (See Table 3 for a sample of questions asked; the authors can provide the full exam, in English and Vietnamese, upon request.)

Table 3 Sample Multiple – Choice questions from 1 = Month Post – Session knowledge assessment

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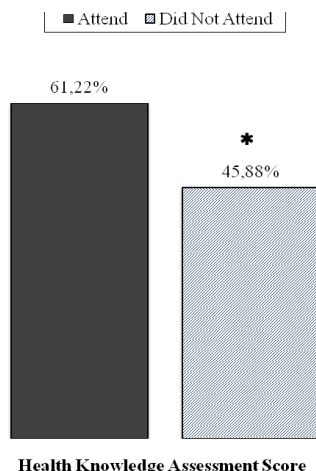
Why is there an increased risk of osteoporosis after menopause?
Why do fingers of patients with leprosy become shortened / deformed?
What is the best method to prevent hemorrhoids?
Which of the following cooking methods preserves the most nutrients?
Which of the following vitamins help the body absorb calcium?

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One month after completion of the program, the final assessment was administered. Participants in our pilot's health discussion sessions scored significantly higher (n=27, 61.22% mean) in the knowledge

assessment compared to those who did not attend any sessions (n= 20, 45.88% mean), p=0.0006, even if the participant attended only one session (Figure 2).

**Figure 2** Comparison of Attendees (n=27) to Non-Attendees (n=20) in Medical Knowledge Assessment One Month After Completion of Pilot Program (p=0.0006)



Note: \* denotes “statistically significant difference”

Demographics of study participants and controls who took the test but did not attend the sessions are described in Table 2 above.

**Narrative Evaluation of the Program**

Qualitative data (i.e., solicited written narrative remarks) regarding the entire program as a whole and

also the medical school visit demonstrated that this program was very well received by the local Vietnamese community and encouraged participants to change their lifestyle toward more healthy living (See Table 4 for a sample of remarks; full qualitative remarks can be provided by the authors upon request).

**Table 4** Sample of qualitative comments regarding program and medical school visit

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“I learned to decrease my sodium and fat intake. My current diet has too much of these and is negatively affecting me.”

“I’m glad the panel had many different careers, some of which I never thought about! Pharmacy sounds cool.”

“I will start exercising frequently, now that I know how it will affect my long-term health.”

“Thank you for the medical school tour; this was the first of its kind provided for our community. I’m glad my family could go together to this event.”

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As a “soft measure” of continued interest in our program and its longer-term impact, to date, the Facebook page with health tips in the Vietnamese language has received over 26,000 likes, and the YouTube videos have been viewed (depending on the subject) in a range from 268 to 18,882 views. The Facebook page and YouTube videos serve as longer-term projects to establish a lasting impact on Vietnamese population health.

**Discussion**

Community-driven, interactive health discussions that utilized simple social and electronic

media as an adjunct significantly increased health literacy within the Vietnamese community in our city. Health literacy (HL) has been defined as “the ability to access, understand, and use health information in ways that promote optimal health. In other words, health literacy involves active participation in the uptake and use of information” (Davis, DW, Jones, VF, Logsdon, MC, Ryan, L, and Wilkerson-McMahon, M, 2013). The use of HL principles is known to deepen cultural inclusion, promote positive health outcomes, and reduce disparities (Nielsen-Bohlman, L., 2004). Our data suggest that, at least in our small sample, short-term health knowledge improved significantly for those who attended

the sessions (even attending just one session) compared to those who attended none.

After attending the health discussion sessions, participants also felt significantly more self-confident in caring for the health of themselves and their families. The significance of self-confidence in health literacy promotion cannot be understated. As Nutbeam suggests, self-confidence is a distinguishing characteristic between functional health literacy (the mere communication of health information), and interactive health literacy (development of personal skills) (Nutbeam, 2000). The highest level of health literacy (critical health literacy) involves personal and community empowerment, and we feel our pilot project can move underserved populations toward this aspirational goal.

The sessions also built a trusting relationship between a health provider and community members, which helped parents to encourage their children to attend the tour of the medical school—promoting the health professions within the Vietnamese community. Encouraging underserved populations to enter the health professions is a worthy goal. Studies show that having underserved or minority physicians in medical school can help to reduce health care disparities within these populations by improving physician-patient concordance and by effecting non-minorities' motivation to care for the underserved communities of their colleagues. (Saha, S, Guiton, G, Wimmers, PF, and Wilkerson, L., 2008; Street, RJ, O'Malley, KJ, Cooper, LA, and Haidet, P., 2013) We acknowledge that one panel discussion to generate interest is only a start; future, larger scale initiatives could expand the project.

#### **Limitations**

There were several limitations. First, the project took place in a single, developed country. However, technology such as the Internet, and social media such as Facebook and YouTube are available worldwide, and could easily translate to all but the least developed countries. Even in those countries and communities, we believe that the model of training and sending an individual with some stake or "investment" in a particular underserved community to teach learner-directed health maintenance is effective and important. Second, the project took place at a single site with religious affiliation. However, this site was considered a central meeting place for the local Vietnamese community, and took into account the strong religious identification of this minority population. Third, the medical student facilitator was required to be fluent in the language of the target population. However, this would be a limitation of any

program which seeks to be "embedded" within the community itself and could be alleviated by the presence of an interpreter; furthermore, expansion of the pilot to larger but still underserved communities in the US (e.g., Spanish-speaking) may alleviate this limitation as more facilitators speak the common language. Finally, the number of people who attend the health sessions varied in each session, because some participants were considered "walk-ins" when they were interested in the topic or heard about it from word-of-mouth. We did not turn these new participants away, as we still considered it a benefit to attend any sessions.

#### **Conclusion**

Our project was successful in completing its major aims. First, it was relatively inexpensive and reproducible. Grant funding for our entire project was only \$2000 (US), but permanent, positive after-effects remain on social media (e.g., YouTube videos and an updated Facebook page) that can be accessed by international communities of Vietnamese persons worldwide, creating a permanent "educational footprint." The significance of this relatively small amount of monetary investment is that it suggests that an inexpensive and reproducible educational format, which utilizes electronic technology and social media, could be used in other underrepresented populations—here and abroad—to increase literacy, confidence in health, and perhaps promote the health professions. Second, we showed that participants' perceptions about their level of confidence in managing their health increased significantly over the time period the course was given; we believe such confidence is an important aspect in health maintenance and provides a subjective measurement of program success. Third, we demonstrated statistically significant increases in knowledge about health in an underserved Vietnamese community through our pre- and post-testing, providing an objective measure of success as well.

Future research could also utilize greater numbers of health professional students worldwide, expanding multicultural education, cultural competency, and the medical knowledge of students while benefiting populations who need it most. Our project demonstrates how eliciting community concerns in planning health education interventions and utilizing technology and social media can achieve (statistically) significant gains in both knowledge and confidence in health care. We expect this approach to be a blueprint for educational interventions in other underserved communities in our country and internationally.

### Funding

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