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Let's Chat: Development of a Family Group Chat Cancer Prevention Intervention for Vietnamese Families

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Abstract

Vietnamese Americans are disproportionately affected by preventable late-stage cancers. This study capitalizes on the protective role of family networks to develop an online social media family group chat intervention promoting cancer screening among Vietnamese American families. A feasibility study was conducted to assess implementing *Let's Chat*, a 4-week intergenerational family group chat intervention to increase cancer screenings. Vietnamese American young adults were trained to act as family health advocates on their private family group chats and share cancer screening messages. The intervention covered material on recommended screenings for colonoscopy for those aged 45+ years, HPV (human papillomavirus) vaccination for young adults, and Pap testing for women. Ten families ($n = 41$) participated. Family group chat content analysis resulted in (a) sharing personal screening experiences, (b) family members being prompted to schedule cancer screening appointments after discussions in the chat, and (c) family members expressing a sense of urgency to follow up with cancer screening. Postintervention survey results revealed that 48% of participants received screening/vaccination, 77% reported intent to schedule an appointment to discuss recommended screenings, 61% reported discussing cancer screenings outside their group chat, 84% felt comfortable discussing screenings with family after the intervention, and 68% agreed that the group chat facilitated comfort around cancer screening discussions. Family members reported feeling closer to their family and greater comfort discussing cancer and cancer screening. Results from the *Let's Chat* feasibility study indicate promise for implementing a randomized trial conditional on grouping family chats by age and gender to increase cancer screenings among Vietnamese American families.

Keywords

Cancer remains the leading cause of death for Vietnamese Americans in the United States (Jin et al., 2016). Additionally, late-stage cancer is still common among Vietnamese Americans coupled with underutilized preventive cancer screenings. Although cervical cancer rates among Vietnamese American women have declined, cervical cancer incidence continues to be the second highest (9.5 per 100,000) cancer disproportionately burdening Vietnamese women (American Cancer Society, 2016). Colorectal cancer (CRC) is another cancer of concern for Vietnamese Americans with incidence rates of 47.8 per 100,000 and 30.7 per 100,000 for men and women, respectively (American Cancer Society, 2016; Jin et al., 2016). Both cervical and CRCs are preventable with early screening or vaccination. The human papillomavirus (HPV) vaccine (at the time of the study) was routinely recommended for adolescents and young adult women aged 18 to 26 years and men aged 18 to 21 years as a catch-up vaccination, and also available to men and women up to age 45 years. The U.S. Preventive Services Task Force additionally

recommends Pap smear testing in addition to HPV vaccination for women beginning at the age of 21 every 3 years (Nardi et al., 2016). For CRC, national guidelines recommend colonoscopy screening beginning at age 50 years but can start at age 45 years depending on family history and symptoms.

Prevention behaviors can be influenced by multiple sociocultural factors with family factors being one of them (Freimuth & Quinn, 2004). Although a physician's recommendation plays a critical role in cancer screening behavior (Taylor et al., 2010; Rosenthal et al., 2011; Jang et al., 2018), family support in some cultures plays an equally important

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role to reinforce and increase self-efficacy in order to follow-up with recommended cancer screenings. Among many minority populations, family networks play a large role in personal health decision making (Coyne et al., 2006; Freimuth & Quinn, 2004). Family and friend networks have been found to influence health outcomes related to stroke recovery and cancer prevention (Berkman et al., 2000; Boden-Albala & Quarles, 2013; Juon et al., 2017). For example, research suggests that interpersonal family communication influences descriptive norms—that others engaging in the same behavior leads to greater likelihood of Hepatitis B screening among Vietnamese American adults (Juon et al., 2017). Likewise, another study found that receiving a mailed CRC screening pamphlet increased intergenerational communication about CRC between Japanese American older parents and their adult children (Lau et al., 2013). Family-focused interventions have been implemented largely in-person and among nuclear families, but no studies to our knowledge have integrated social media family group chats to promote and reinforce cancer screening.

Studies have found that social media apps like WhatsApp are typically used in family settings to connect intergenerationally (Aharony & Gazit, 2016; Taipale, 2019). The majority of health research has been focused in the public domain of social media sites like Facebook and Twitter (Maher et al., 2016). No studies to our knowledge have utilized private social media group chats for health research purposes. Given the potential benefits of intergenerational interactions for health, social media group chats can be capitalized to reach extended family members with important health information (Taipale & Farinosi, 2018). Knowledge alone does not change behavior; therefore, reinforcement of cancer screening messages from family and normalizing preventive behavior through family conversation play an important role in realizing cancer prevention behavior change.

The theoretical foundation of *Let's Chat* is grounded in (a) employing a family lay health approach (Nguyen et al., 2015), (b) the health belief model (Champion & Skinner, 2008), and (c) cultural grounding (Hecht & Krieger, 2006). Cancer screening interventions among the Vietnamese communities have been applied using lay health workers given their in-group trust with the community (Nguyen et al., 2015; Taylor et al., 2010). This concept was adapted for the digital family communication environment to have young adult family members act as family health advocates (FHAs) in their group chats and share cancer screening information. Constructs from the health belief model guided selection of intervention curriculum by selecting cancer screening messages focused on susceptibility, severity, barriers, benefits, and cues to act on screening recommendations relevant to Vietnamese Americans (Champion & Skinner, 2008). Finally, the principle of cultural grounding guided how FHA were trained to tailor delivery of cancer prevention messages in ways that increase message acceptance by their families.

Intervention curriculum and delivery strategies were guided by each these theoretical perspectives.

The goal of this study was to assess the feasibility of implementing a family-focused social media group chat cancer prevention intervention to increase CRC screening, Pap smear testing, and HPV vaccination; increase family members' self-efficacy to schedule cancer screening visits; and increase comfort level in discussing cancer prevention with family members. Our research questions include (1) What types of communication emerge from family group chat interactions? (2) Does the *Let's Chat* intervention increase cancer screening intent? (3) Does *Let's Chat* increase cancer screening efficacy? (4) Does *Let's Chat* increase comfort in discussing cancer prevention within the family context?

Method

Let's Chat *Intervention*

The 4-week intervention was implemented across January and February 2019, launching the study during the Vietnamese lunar new year (*Tết*) to encourage a healthy new year and signal cultural cues to act on screening recommendations. A young adult family member was designated as the FHA and trained on sharing cancer screening messages each week with the family using the group chat. During Week 1, FHAs covered colonoscopy screening for CRC. In Week 2, FHAs initiated conversation about alternative CRC screening such as the fecal immunochemical test. Week 3 focused on HPV-related cancers and the HPV vaccine. Finally, Week 4 concluded with discussions about the Pap test for women.

Recruitment of Young Adult FHAs and Their Families. A two-stage recruitment process was employed: The study team recruited young adult Vietnamese Americans as FHAs, who then recruited their family members. Young adult Vietnamese Americans between the ages of 18 and 45 years living in Orange County, California, who self-reported having at least one active family group chat were recruited from a research university's academic department listservs via an emailed advertisement. Eligible family members had to have participated in the group chat within the past month. Each family group had to have at least one family member who had not completed their recommended cancer screening for colorectal screening (by age 50 years), Pap test (at age 21 years, every 3 years), or HPV vaccination (between ages 18 and 45 years). FHAs were compensated $100 for facilitating the intervention and participating in an exit interview. Family members were given the opportunity to enter into a raffle for a $5 Starbucks gift card at the end of the study.

Vietnamese Family Health Advocate Training. Young adult FHAs participated in a 1-hour in-person training facilitated by the research assistant. FHAs were provided an overview of the intervention goal, their role in promoting cancer

screenings, the cancer prevention material (drawn from Centers for Disease Control and Prevention, American Cancer Society, and the Asian American Network for Cancer Awareness), prompts that elicit family conversation on group chat, techniques to keep family engaged on the group chat, and weekly data submission logistics. FHAs were also given the research assistant's contact information in case they needed immediate assistance.

Creation of Family Group Chat. A new family group chat was created in which all family participants consented to participate in the study. Family members gave written consent to the FHAs on the family group chat when the new group chat was created. Family members were informed that group chat family discussions would be de-identified, shared with the researcher, and content analyzed. The study was approved by the academic institution's human subjects review board.

Implementation of the Let's Chat Group Chat Intervention. Prior to each week's content, FHAs checked in with their family members about their overall wellness. Then, they introduced the cancer topic for the week and included prompts to encourage group chat discussion. Sample prompts for each week included (a) If you have been screened for CRC, what was your experience like? (b) Are there any questions about [CRC screening]? (c) What do you think might be reasons for getting the HPV vaccine? (d) Why do you think the cervical and CRC rate is higher among Vietnamese women? FHAs also shared bilingual supplemental cancer information (e.g., infographics, videos, websites) with family members. A culturally tailored website was created for FHAs to easily access the educational resources in order to share with their families (see Supplemental Appendix 1). While FHAs were given many resources to choose from, they were encouraged to tailor how and when they shared the cancer screening material with their family group chats.

Data Collection

Two types of data were collected: family conversation screenshot data and family member survey data. Screenshot data of group chat family conversations were received weekly. FHAs were trained to de-identify personal information (e.g., photos or names) prior to submitting the screenshots to the researchers in order to protect the privacy of the family members in the group chats. Electronic surveys via SurveyMonkey.com were administered 1 week before and after the intervention. FHAs shared the survey in their group chat and encouraged family members to respond to the survey.

Pre-Intervention Measures

The pre-intervention survey collected demographics, screening/vaccination history, screening efficacy, and family communication measures.

Demographics. Demographics included age, relationship to the FHA, immigrant generation, health insurance status, primary care provider, and transportation. For screening/vaccination history, age-eligible participants were asked whether they had ever received the screening/vaccination (yes/no).

Screening Efficacy. Screening efficacy was measured using two items (Fernandez et al., 2009). Example items included having participants rate their level of agreement to questions about confidence discussing cancer screening with their doctor and whether they felt confident scheduling a cancer screening appointment. All measures used a 5-point Likert-type response scale ranging from "strongly agree" to "strongly disagree."

Family Communication. Family communication was measured using a four-item scale (Dailey et al., 2011). Example items included statements about whether participants thought their family members valued their thoughts and feelings, whether they are likely to get screened for cancer if their family members talked about it with them, and whether they are likely to get screened if family members pushed them to do so (Dailey et al., 2011). All measures used a 5-point Likert-type response scale ranging from "strongly agree" to "strongly disagree."

Postintervention Measures

The postintervention measures collected actual CRC and Pap test/HPV vaccination outcomes, intent to screen, intent to schedule an appointment in order to discuss screening with doctor, actually scheduling an appointment, screening efficacy (same as pre-intervention measure), family communication (same as pre-intervention measure), and comfort discussing cancer screening with family.

Screening/Vaccination Outcomes and Intent. Screening/vaccination outcomes were measured by asking participants whether they actually received CRC screening, Pap test, and HPV vaccination after participating in the intervention. Responses were dichotomous with yes or no. Likewise, intention to screen/vaccinate was measured by asking whether participants intended to receive the CRC screening, Pap test, and HPV vaccination after participating in the intervention. Responses were dichotomous with yes or no.

Family Comfort. A five-item family comfort measure was used asking participants to rate their level of agreement with statements (Carney et al., 2014). Example statements included feeling comfortable talking with family about cancer and cancer screening, whether the information helped with the family discussions, and whether participating in the group chat led to discussion about cancer outside the group chat. All measures used a 5-point Likert-type response scale ranging from "strongly agree" to "strongly disagree."

Data Analysis

Qualitative Data Analysis. Screenshots of group chat family conversations were content analyzed by authors using an inductive phronetic iterative approach (Tracy, 2019a, 2019b). Data were first read and reread (data immersion) followed by primary cycle line-by-line open coding describing what and how family conversations about cancer were discussed, capturing reactions, responses, and questions with codes. Examples of first-level codes included "appointments," "asking for help," "fear," "concern," and "screening stories." Second-level coding included organizing and grouping primary-level codes into higher-order themes characterizing categories of family engagement (Tracy, 2019b). A codebook was developed reflecting the higher-order themes of types of family conversations and emerging themes.

Quantitative Data Analysis. Descriptive statistics were performed on pre- and postintervention survey data using STATA 16.0. Family engagement was assessed quantitatively by computing frequencies of family members who responded each week and average number of weekly messages. Engagement was also measured by quality of conversations (e.g., whether participants stayed on topic, asked questions, responded with longer sentences rather than with single words). High engagement was defined as having three or more family members responding each week with an average of 20 messages per week, medium engagement was two to three respondents with an average of 10 to 19 messages per week, and low engagement was having one or no family members responding with an average of zero to nine messages per week.

Results

Demographics

Ten families (*n* = 41) reflecting 10 family group chats participated in the intervention. The average age of FHAs was 20 years, 90% were female, all identified as second-generation immigrants, and all were enrolled in college at the time of the study. Family group chat size ranged from three to six members, included multiple immigrant generations (first, 1.5, and second), and several types of family members (e.g., parents, siblings, aunts, uncles, cousins). Table 1 shows baseline demographics by screening eligibility (*N* = 41).

Prior to the intervention, seven of 23 (30%) CRC-eligible participants had not been screened, 11 out of 18 (61%) HPV vaccine–eligible participants were unvaccinated, and 11 out of 24 (46%) of Pap test–eligible women had not yet received Pap test. Four family groups experienced 10 family member participants not completing postintervention surveys. Of the 41 family members who participated in the intervention, 31 completed pre- and postintervention surveys.

Of the 31 who completed surveys in full, a majority of participants were female (*n* = 20; 64.5%). More women participated in the study than men. Furthermore, women were far more engaged during the intervention than men. There were eight (25%) cousins, three (10%) sisters, two (7%) brothers, seven (23%) mothers, four (13%) fathers, four (13%) aunts, and three (10%) uncles. Family group chat member age ranged from 18 to 75 years, with a mean age of 35 years. All participants reported having health insurance, 29 (93.5%) had a primary care provider, and 28 (90.3%) reported having a reliable form of transportation to get to their doctor's office.

Family Group Chat Engagement

Most family group chats (*n* = 8) were highly or moderately engaged with each week's cancer prevention conversation. This was measured by average number of messages exchanged each week. The highest engaged group had more than three family participants sending an average of 46 messages per week. The majority of moderately engaged group chats (*n* = 7) had two to three respondents sending between 10 and 17 messages on average each week. Two family group chats were less engaged in actively participating in the intervention sending less than five responses per week. In all group chats, emojis, "thumbs up," or "like" button were used often to show acknowledgement of messages. Some family group chats were more engaged than others depending on communication style and family dynamic. Some FHAs chose to follow up closely with their group chats consistently, while others passively sent information without following up. Family group chat dynamics also differed by whether a greater proportion of young adults were present in the group compared with group chats where the FHA was the only young adult leading the conversation with the majority being older family members in the group chat.

Qualitative analysis of conversation screenshots showed that older family members were more engaged than younger family members and used both English and Vietnamese to communicate with their family, especially about CRC screening. Conversation engagement was higher in the first 2 weeks of the intervention during discussion of CRC compared with the latter 2 weeks when HPV vaccination and Pap screening were discussed. Engagement about HPV vaccination among young adults was much lower overall. FHAs suggested that the lack of involvement may have been due to busy schedules, timing of the intervention (e.g., in the middle of the school year), and hesitation to discuss sexual health in the presence of older family members. While young adults were less engaged during the weeks that targeted them, they were more active in the group chat when there was a chance for them to cofacilitate or make appointments on behalf of older family members. The following types of conversations emerged from interactions as a result of the intervention.

Table 1. Demographic Characteristics of Family Member Participants at Pre-Intervention (*N* = 41).

Participant baseline characteristics	Eligible for CRC screening, age 45+ years (*n* = 23)		Eligible for HPV vaccination, age 18–45 years (*n* = 18)		Eligible for Pap smear screening, age 21+ years (*n* = 24)	
	n	%	*n*	%	*n*	%
Ever received CRC screening	16	70	—	—	—	—
Ever received HPV vaccine	—	—	7	39	—	—
Ever received Pap smear	—	—	—	—	13	54
Gender						
Female	13	57	14	78	24	100
Male	10	43	4	22	—	—
Age, years						
<30	—	—	15	83	9	38
30–44	—	—	2	11	2	8
45–59	15	65	1	5	9	38
60–74	6	26	—	—	2	8
75+	2	9	—	—	2	8
Health insurance						
Yes	23	100	18	100	24	100
Primary care doctor						
Yes	23	100	18	100	24	100
Reliable transportation						
Yes	22	96	16	88	24	100
No	1	4	2	22	24	100
Relationship to FHA						
Grandmother	2	9	—	—	2	8
Father	6	26	—	—	—	—
Mother	8	35	—	—	8	33
Aunt	3	13	2	11	4	17
Uncle	4	17	—	—	—	—
Sister	—	—	4	22	3	13
Brother	—	—	2	11	—	—
Cousin	—	—	10	56	7	29

Note. CRC = colorectal cancer; HPV = human papillomavirus; FHA = family health advocate.

Emergent Themes From Qualitative Analysis of Family Group Chat Conversations

Disclosing Personal Screening Experiences. There were instances where FHAs asked family members to share whether they had been screened for CRC. Family members who had screened described their experiences and encouraged others to screen. In Figure 1, a screenshot of family conversations, the FHA's father shares his personal CRC screening experience of a "partial test" or fecal immunochemical test screen with the FHA's aunt and uncle. By sharing his experience, the father encouraged the other family members to screen.

Discussion Prompts Scheduling Cancer Screening Appointments. In many cases, the discussion prompted family members to make an appointment to see their doctor for screening (Figure 2). The FHA had shared the CRC information and Vietnamese language fact sheets to help family members better understand the importance of CRC screening. By sending

message prompts, the conversation continued and the father conveyed that he and his wife (the FHA's parents) had scheduled an appointment to talk to their doctor about screening. The father acknowledged that he would update the FHA after their clinic visit.

Urgency to Follow-up With Cancer Screening. Family members who had never received CRC screening expressed a sense of urgency after learning about the recommended screenings (Figure 3). A grandmother in one group chat expressed concern after learning about the recommended colonoscopy that she had never received. The FHA encouraged her grandmother to follow up with the recommended screening. The FHA also encouraged and followed up with other extended family members on the group chat (her aunt and uncle) to confirm that they would facilitate scheduling an appointment. A sense of urgency to screen was expressed in several group chat conversations as well as asking their adult children (also on the chat) to facilitate making an appointment for them.

Figure 1. Disclosing personal screening experiences.
Note. Family members discussed their experiences and disclosing whether they had been screened. The FHA's uncle realized that he may need to initiate the conversation with his doctor after hearing from other family members. Messages have been edited to remove identifiers. Participants in this chat include the FHA, their uncle, aunt, mother, and father.

Posttest Family Intervention Survey Outcomes

Overall, 48% of participants reported having received screening and/or vaccination after participating in the intervention, and 47% of participants reported intent to screen or vaccinate (see Table 2). Sixty-one percent reported discussing cancer screenings outside their group chat, 84% felt comfortable discussing screenings with family after the intervention, and 68% agreed that the group chat facilitated comfort around cancer screening discussions.

CRC Screening, HPV Vaccination, Pap Test Outcomes, and Intent. Compared with HPV and Pap testing, CRC screening uptake (47%) and intent to receive CRC screening among adult age-eligible participants (48%) seemed to be the highest after the intervention. Family members adopting HPV vaccination (6%) and intention to vaccinate (31%) were low. For the Pap test among female family members age 21+ years, 50% reported intent to receive the Pap test or repeat the test. After learning about the cancer topics, 77% of participants intended to schedule an appointment to discuss recommended screenings with their doctors, and 48% reported actually scheduling an appointment to discuss screening with their doctor.

Screening/Vaccination Efficacy. Screening efficacy did not change substantially before and after the intervention. Twenty-six participants felt confident that they can discuss cancer screening with their doctor even if the doctor does not bring it up before and after the intervention. Furthermore, participants indicated that they would feel confident scheduling an appointment to be screened for cancer before the intervention compared with 24 after the intervention.

Family Communication and Comfort Outcomes. All participants reported agreeing that their family members cared about them and their health. Likelihood of screening increased if family members discussed or encouraged them to screen, as shown under family communication outcome measures. Participants highly agreed that the group chat conversations and the online platform helped them and their family members feel more comfortable talking about cancer screenings. Table 2 highlights these trends.

The majority of the participants (90%) indicated that the intervention content was informative and educational from open-ended responses. When asked "What did you like most about participating in the family group chat discussions about cancer screening," 42% of the participants described the intervention experience as a good way to share information. Nearly half (45%) of the participants wrote that they favored the intervention because it helped them become more open to discussing cancer and felt closer to family members by seeing other family members' perspectives. For example, a 30-year-old cousin wrote in her response: "It opened a discussion [about cancer screening] that is not talked about much in my family. [It] made us closer and

Figure 2. Discussion prompts scheduling cancer screening appointments.
Note. FHA's mother and father learned about CRC screening and told the FHA that they had made an appointment to talk to their doctor. Messages have been edited to remove identifiers. Participants in this chat include the FHA, their mother, and father.

comfortable to be able to talk about it." This sentiment was echoed in several responses, indicating that the intervention shows promise to encourage and normalize family conversations about cancer prevention that were previously not discussed.

Discussion

The current intervention is the first group chat intervention to integrate cancer prevention education. The study offers an innovative way to amplify the protective role of family networks to disseminate and emphasize recommended cancer prevention behaviors for a Vietnamese community disproportionately affected by late-stage cancer. This study assessed the feasibility of a family social media intervention to increase cancer screening, family comfort discussing

cancer, engagement, and screening efficacy. In the context of intergenerational health communication and strengthening family connectedness, young adult FHAs introduced conversations in family group chats about the importance of cancer screening. Results suggest a favorable response to implementing a potentially low-cost, scalable intervention in an online setting. Physicians may recommend cancer screenings, but results indicate that having trusted family networks share and reinforce screening recommendations has the potential to play an influential role in nudging family members to comply with recommended cancer screenings/vaccinations. This same protective role of family networks has been shown in in-person interventions for lung and CRC prevention with families functioning as social support for individuals to change their behavior (Berkman et al., 2000; Lau et al., 2013; Tsoh et al., 2015). Reinforcing messages through

Figure 3. Urgency to follow up with cancer screening.
Note. Grandmother expressed sense of urgency to be screened and asked for help to schedule an appointment. Messages have been edited to remove identifiers. Participants in this chat include the FHA, their grandmother, uncle, and aunt.

multiple trusted communication channels for prevention has the capability to model, normalize, and influence adoption of screening behavior (Snyder, 2007).

The goals of the intervention were two-fold: to increase cancer screening in the form of scheduling appointments (e.g., for colonoscopy, for Pap smear, or to vaccinate for HPV) and to increase comfort discussing cancer prevention among family members. Our study describes the group chat conditions that (a) enable engagement to discuss cancer prevention among digitally networked Vietnamese family members and (b) lead to positive preventive behavior outcomes (e.g., scheduling an appointment and intending to screen/vaccinate). Findings reveal that *Let's Chat* effectively facilitated online mediated family networks to encourage cancer screening/vaccine behaviors. Possible mechanisms by which the family network interventions are theorized and will be tested in future studies to support

actualizing cancer screening may include (a) facilitating family comfort discussing cancer prevention and (b) increasing efficacy to schedule clinic visits. Although the protective role of family networks to improve health has been recognized by Berkman's (2000) theory of family networks and in cancer screening studies (Madlensky et al., 2003; Manne et al., 2002), this study's contribution and novelty lies in extending and testing a family network–grounded intervention in the mediated social media family group chat environment—an increasingly prevalent and new norm for how families stay connected. Family members expressed that the intervention presented an opportunity to connect on health topics that they otherwise would have never discussed. The intervention also helped spark discussion outside the group chat with other friends and/or family members, indicating potential to increase comfort discussing taboo cancer topics beyond group chats.

Table 2. Pre- and Postintervention Outcomes.[a]

Items	Pre-intervention (N = 31), n (%)	Postintervention (N = 31), n (%)
Screening and vaccination outcomes		
Colonoscopy and FIT screening among ages 45+ years (n = 17)	13 (76)	8[b] (47)
HPV vaccination among ages 18–45 years (n = 15)	6 (40)	1[b] (6)
Pap smear screening (n = 20)	11 (55)	6[b] (30)
CRC screening intent (n = 31)	Not available	15 (48)
HPV vaccination intent among ages 18–45 years (n = 15)		6 (31)
Pap smear test intent (n = 20)		10 (50)
Intent to schedule appointment with doctor to discuss recommended screenings/vaccination (n = 31)		24 (77)
Scheduled an appointment to discuss screening or vaccination (n = 31)		15 (48)
Screening efficacy		
I am confident I can discuss cancer screening with my doctor even if my doctor does not bring it up.	26 (84)	26 (84)
I am confident I can schedule an appointment to be screened for cancer.	22 (71)	24 (77)
Family communication outcomes		
My family typically values my thoughts and feelings.	29 (90)	31 (100)
I am likely to get screened for cancer if my family members talk about the screening with me.	21 (77)	27 (87)
I am likely to get screened for cancer if my family members push me to get screened.	27 (87)	29 (94)
Family comfort measures		
The group chat discussions helped my family feel more comfortable talking about cancer screenings.	Not available	27 (87)
Introducing the cancer topics in the group chat made talking about cancer easier.		25 (81)
The informational messages sent by the family health advocate helped me talk about cancer screening with my family.		26 (84)
After participating in the group chat discussions, I feel comfortable discussing cancer screenings with my family members.		26 (84)
After participating in this group chat, I discussed cancer screenings with other people outside my group chat.		19 (61)

Note. FIT = fecal immunochemical test.
[a]Sample size is (n = 31) unless stated otherwise. [b]This number may be lower because participants were asked "After the intervention, did you receive the screening?"

The online environment appeared to be helpful for increasing comfort with disclosure of personal health screening behaviors. Some family members were more comfortable disclosing that they had never received screening. Others responded less about themselves and focused their attention on the person who disclosed information. In this study, older family members were more likely to disclose CRC screening status. This was possibly due to the way in which conversations evolved where one of the message template prompts asked participants to share personal screening experiences, which led to disclosure of having been screened or not. On the other hand, young adults were encouraged to discuss a different type of cancer screening (HPV vaccination) but seemed to be hesitant to discuss the topic of HPV if the group chat composition included more older adults than younger adults. Among group chats who had one older adult and several younger adults, discussion about HPV vaccine and Pap testing seemed to occur more easily. A similar phenomenon occurred during the Pap testing week in group chats with several older adults, where participants dismissed the topic, did not respond, or told the FHA that they would read more about it later rather than engaging in conversation as they did in earlier weeks.

Gender composition of group chats may likely play a role in willingness to discuss Pap testing in the presence of men. These health disclosures (or lack thereof) among young adults may likely be due to the cultural silence around sexual health topics especially among Vietnamese, other Asian cultures, and Catholic or Muslim family culture (Kim & Ward, 2007; Rawson & Liamputtong, 2009; Trinh et al., 2014). Family members being selective in their disclosure choices brings to mind communication privacy management theory, which highlights how family members (in-person or online) manage their privacy by regulating their disclosure choices when communicating with family (Petronio & Caughlin, 2006). The online context may have helped the older family members be more accepting of information but had the opposite effect for the young adult family members.

Conversations about cancer are typically prompted by a diagnosis in the family or other family health history discussion (Mariño et al., 2016). Although family health history can be an important indicator of cancer risk, this intervention is premised on emphasizing the importance of seeking prevention services. Similar to how edutainment communication strategies take advantage of engaging storyline opportunities to insert health messages (Guéguen, 2002), social media group chats are channels where families discuss day-to-day topics and offer comfortable environments as opportunities for talking about health (Coughlin et al., 2016; Zhang & Jung, 2018). The group chat intervention leverages existing family networks to influence Vietnamese family members' willingness to comply with recommended health screenings (Child et al., 2015; Schmid et al., 2008; Taipale & Farinosi, 2018). FHAs facilitate conversations, provide bilingual educational material, and can schedule appointments for family members when necessary. Including FHAs in the design of the intervention helped address expected challenges like language, cultural, and logistical barriers to act on screening behaviors.

Limitations of the study include inferences that can be made given the artificial group created for research purposes where all participating family members consented to participate. Creating another family group chat for research may have introduced social desirability bias since participants knew that they were part of a study. However, the extent to which external validity is threatened is not clear since the artificial family group chat still reflected and functioned similarly if not identical to the family's real personal group chat. The true naturally occurring group chat environment may lend itself to differing reactions and expressions. In terms of threats to internal validity, there is potential selection bias because we used a convenience sample of participants who volunteered to participate and may have been more interested in the topic than nonparticipants.

In addition, when assessing pre- and postintervention outcomes, the trend for screening/vaccination uptake after the intervention seems to decrease. A potential reason for this is that participants who indicated that they had screened after the intervention had also reported screening before the intervention, which may suggest repeat screening or confusion by the question. Self-report bias could also be present in these responses. Furthermore, postintervention surveys were administered 1 week after the intervention ended so participants may not have had a chance to schedule a screening in that short period of time. Recruitment of entire families was a challenge because we were able to sample only a small subset of extended family members since recruitment was based on interest and consent. Last, attrition of extended family members (defined as lessened participation rather than dropout) limited the study's results because less participation and lack of return of 10 surveys led to missing data. Attrition may have been due to participant fatigue toward the end of the 1-month study with constantly having to respond to family members or lack of interest toward the end of the intervention.

Conclusions

Previous family network–based studies have typically focused on the nuclear family and in-person contexts (Juon et al., 2017; Lau et al., 2013; Tsoh et al., 2015). This study not only offers positive correlates of feasibility but also applies and extends several novel research areas by implementing a real-world family-focused cancer screening intervention in the (a) online private family group chat environment; (b) with extended, intergenerational family networks; and (c) and young adult FHAs to communicate important prevention messages with their peers and older family members.

Advantages of a social media family group chat approach include an immediate and extended, yet personalized reach to an entire group of family members who will benefit from cancer prevention. Such an intervention also has tremendous potential to normalize cancer prevention conversations, which are a taboo topic, among many Vietnamese families. While topics like cancer, sex, and mental health are often considered taboo topics, filial piety (the idea that family interests take precedence over personal interests) is highly valued in Vietnamese culture (Pyke, 2000; Tingvold et al., 2012). Thus, leveraging FHAs to advocate and frame the conversation around caring for their family members' wellness helped make talking about cancer topics more acceptable. Furthermore, presenting cancer prevention topics as chronic disease prevention may potentially help decrease stigma around cancer conversations.

In practice, it is important to consider additional training to help address differing family dynamics that may affect how families engage in conversation. Despite this, it was evident that both FHAs and other young adults participating in the group chats were willing to assist the older family members whenever needed. Results show that using family group chat offers a feasible way to educate, engage, and empower Vietnamese families to practice preventive behaviors. Scaling up and conducting a randomized controlled trial is planned for a future study. Approaches to recruit larger numbers of entire families have to be carefully planned, perhaps in collaboration with community-based organizations. This feasibility study suggests that segmenting group chats by age and gender will yield more free family group chat discussion on relevant prevention topics. Study results suggest that this intervention is a promising, novel approach for reaching minority families who are disproportionately affected by late-stage cancers. Researchers may consider investing in this type of intervention approach, which has the capacity to alleviate the cancer burden among minority populations.

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Declaration of Conflicting Interests

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Ethics Approval

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Supplemental Material

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